

Publications on the Clinical Use of SIR-Spheres® Y-90 resin microspheres

Since the first experimental patients were treated in the late 1980s, numerous reports detailing the use of SIR-Spheres Y-90 resin microspheres have appeared in the literature. These papers have been from a variety of clinical study and routine experience settings and are presented here as a bibliography in different tumour types and in chronological order (latest first). In addition, the interim results of other studies that have as yet only been presented at scientific meetings are provided separately in each tumour type.

Review articles, technical papers and books or chapters on selective internal radiation therapy (SIRT) or radioembolisation that are useful sources of information on areas related to treating patients with SIR-Spheres Y-90 resin microspheres are also listed, again in chronological order in each section.

Contents

Colorectal Cancer Liver Metastases.....	2
Hepatocellular Carcinoma.....	14
Neuroendocrine Tumour Liver Metastases.....	27
Breast Cancer Liver Metastases	32
Pancreatic Cancer Liver Metastases.....	33
Cholangiocarcinoma	35
Melanoma Liver Metastases	37
Lung Cancer Liver Metastases.....	38
Cervical Cancer Liver Metastases.....	39
Desmoplastic Small Round Cell Tumour Liver Metastases	39
Renal Cell Carcinoma Liver Metastases.....	39
Hemangioendothelioma Liver Metastases.....	39
Testicular Cancer Liver Metastases	39
Primary or Metastatic Soft Tissue Sarcomas of the Liver.....	40
Liver Tumours from Gastrointestinal Stromal Tumours (GIST).....	40
Thyroid Cancer Liver Metastases.....	40
Gastro-Oesophageal Cancer Liver Metastases.....	40
Liver Metastases from Cancer of Unknown Primary.....	40
Liver Tumours from Various Cancer Sources.....	41
Lung Malignancies	50
Haematological Malignancies.....	50
Primary Renal Cancer.....	50

®SIR-Spheres is a registered trademark of Sirtex SIR-Spheres Pty Ltd



Sirtex Medical Limited
Level 33, 101 Miller Street
North Sydney NSW 2060

Australia
Phone: +61 2 99 64 8400
Email: info-au@sirtex.com

Sirtex Medical Singapore Pte Ltd
50 Science Park Road
#01-01 Science Park II

Singapore 117406
Phone: +65 6800 6500
Email: info-ap@sirtex.com

Sirtex Medical United Kingdom Ltd.
Bldg 3, Chiswick Park, 566 Chiswick High Road
London W4 5YA

United Kingdom
Phone: +49 228 18 407 30
Email: info-uk@sirtex.com

Prostate cancer.....	51
Consensus Statements / Guidelines	51
Review Articles	54
Mechanistic Aspects of Treatment	74
Hepatic Arterial Anatomy	97
Imaging.....	100
Managing Side Effects and Complications	126
Books and Book Chapters	135

Colorectal Cancer Liver Metastases

Prospective Clinical Studies in Colorectal Cancer Liver Metastases

Jongen MJM, Rosenbaum CENM, Braat MNGJA *et al.* Anatomic versus Metabolic Tumor Response Assessment after Radioembolization Treatment. *J Vasc Interv Radiol* 2018; **29** (2): 244–253.

Sharma RA, Gibbs P, Sharma NK *et al.* Adequate SIRT activity dose is as important as adequate chemotherapy dose - Authors' reply. *Lancet Oncol* 2017; **18** (11): e637.

Braat AJAT, Kappadath SC, Bruijnen RCG *et al.* Adequate SIRT activity dose is as important as adequate chemotherapy dose. *Lancet Oncol* 2017; **18** (11): e636. ePub doi: 10.1016/S1470-2045(17)30811-2.

Wasan HS, Gibbs P, Sharma NK *et al.* First-line selective internal radiotherapy plus chemotherapy versus chemotherapy alone in patients with liver metastases from colorectal cancer (FOXFIRE, SIRFLOX, and FOXFIRE-Global): a combined analysis of three multicentre, randomised, phase 3 trials. *Lancet Oncol* 2017; **18** (9): 1159–1171.

Cercek A, Gendel V, Jabbour S *et al.* A Comparison of Yttrium-90 Microsphere Radioembolization to Hepatic Arterial Infusional Chemotherapy for Patients with Chemo-refractory Hepatic Colorectal Metastases. *Curr Treat Options Oncol* 2017; **18** (7): 42. ePub doi: 10.1007/s11864-017-0481-1.

Virdee PS, Moschandreas J, GebSKI V *et al.* Protocol for combined analysis of FOXFIRE, SIRFLOX, and FOXFIRE-Global randomized phase III trials of chemotherapy +/- Selective Internal Radiation Therapy as first-line treatment for patients with metastatic colorectal cancer. *JMIR Research Protocols* 2017 Mar 28; ePub doi: 10.2196/resprot.7201.

Rosenbaum CENM, van den Hoven AF, Braat MNGJA *et al.* Yttrium-90 radioembolization for colorectal cancer liver metastases: a prospective cohort study on circulating angiogenic factors and treatment response. *European Journal of Nuclear Medicine and Molecular Imaging Research* 2016 Dec 21; ePub doi: 10.1186/s13550-016-0236-1.

Marriott ER, van Hazel G, Gibbs P, Hatswell AJ. Mapping EORTC-QLQ-C30 to EQ-5D-3L in patients with colorectal cancer. *Journal of Medical Economics* 2016 Oct 13; ePub doi: 10.1080/13696998.2016.1241788.

Van Hazel. Reply to Harrold EC *et al* and Ayoola AO *et al.* *Journal of Clinical Oncology* 2016 Sep 12; ePub doi: 10.1200/JCO.2016.69.4554.

Ayoola AO. SIRFLOX: Progression-free survival in the liver as a surrogate end point for survival? *Journal of Clinical Oncology* 2016 Sep 12; ePub doi: 10.1200/JCO.2016.69.3523.

Harrold EC, Nicholson PJ, Tuite DJ, Power DG. Selective internal radiation therapy/yttrium-90: Have we found its place? *Journal of Clinical Oncology* 2016 Sep 12; ePub doi: 10.1200/JCO.2016.68.6782.

van Hazel GA, Heinemann V, Sharma NK *et al.* SIRFLOX: Randomized phase III trial comparing first-line mFOLFOX6 (plus or minus bevacizumab) versus mFOLFOX6 (plus or minus bevacizumab) plus selective internal radiation therapy in patients with metastatic colorectal cancer. *Journal of Clinical Oncology* 2016; **34**: 1723–1731.

- van den Hoven A, Rosenbaum C, Elias S *et al.* Insights into the dose-response relationship of radioembolization with resin yttrium-90 microspheres: A prospective cohort study in patients with colorectal cancer liver metastases. *Journal of Nuclear Medicine* 2016; **57**: 1014–1019.
- Gibbs P, GebSKI V, Van Buskirk M *et al.* Selective internal radiation therapy (SIRT) with yttrium-90 resin microspheres plus standard systemic chemotherapy regimen of FOLFOX versus FOLFOX alone as first-line treatment of non-resectable liver metastases from colorectal cancer: the SIRFLOX study. *BMC Cancer* 2014; **14**: 897.
- Dutton SJ, Kenealy N, Love SB *et al.* FOXFIRE protocol: An open-label, randomised, phase III trial of 5-fluorouracil, oxaliplatin and folinic acid (OxMdG) with or without interventional Selective Internal Radiation Therapy (SIRT) as first-line treatment for patients with unresectable liver-only or liver-dominant metastatic colorectal cancer. *BMC Cancer* 2014; **14**: 497.
- Cohen SJ, Konski AA, Putnam S *et al.* Phase I study of capecitabine combined with radioembolization using yttrium-90 resin microspheres (SIR-Spheres) in patients with advanced cancer. *British Journal of Cancer* 2014; **111**: 265–271.
- Sofocleous CT, Garcia AR, Pandit-Taskar N *et al.* Phase I trial of selective internal radiation therapy for chemorefractory colorectal cancer liver metastases progressing after hepatic arterial pump and systemic chemotherapy. *Clinical Colorectal Cancer* 2014; **13**: 27–36.
- Gulec SA, Pennington K, Wheeler J *et al.* Yttrium-90 microsphere-selective internal radiation therapy with chemotherapy (Chemo-SIRT) for colorectal cancer liver metastases: An in vivo double-arm-controlled phase II trial. *American Journal of Clinical Oncology* 2013; **36**: 455–460.
- Reid T. Integration of selective internal radiation therapy second-line: The InSIRT trial. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 10–11.
- Wasan H. Selective internal radiation therapy first-line therapy – SIRFLOX and FOXFIRE. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 12–14.
- Fahmueller YN, Nagel D, Hoffmann RT *et al.* Predictive and prognostic value of circulating nucleosomes and serum biomarkers in patients with metastasized colorectal cancer undergoing selective internal radiation therapy. *BMC Cancer* 2012; **12**: 5.
- Gulec SA, Suthar RR, Barot TC, Pennington K. The prognostic value of functional tumor volume and total lesion glycolysis in patients with colorectal cancer liver metastases undergoing ⁹⁰Y selective internal radiation therapy plus chemotherapy. *European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38**: 1289–1295.
- Cosimelli M, Golfieri R, Cagol PP *et al.* Multi-centre phase II clinical trial of yttrium-90 resin microspheres alone in unresectable, chemotherapy refractory colorectal liver metastases. *British Journal of Cancer* 2010; **103**: 324–331.
- Hendlisz A, Van den Eynde M, Peeters M *et al.* Phase III trial comparing protracted intravenous fluorouracil infusion alone or with yttrium-90 resin microspheres radioembolization for liver-limited metastatic colorectal cancer refractory to standard chemotherapy. *Journal of Clinical Oncology* 2010; **28**: 3687–3694.
- van Hazel GA, Pavlakis N, Goldstein D *et al.* Treatment of fluorouracil-refractory patients with liver metastases from colorectal cancer by using Yttrium-90 resin microspheres plus concomitant systemic irinotecan chemotherapy. *Journal of Clinical Oncology* 2009; **27**: 4089–4095. [see accompanying editorial by Kuebler JP under *Review Articles/ Colorectal Cancer*]
- Van den Eynde M, Flamen P, El Nakadi I *et al.* Inducing resectability of chemotherapy refractory colorectal liver metastasis by radioembolization with yttrium-90 microspheres. *Clinical Nuclear Medicine* 2008; **33**: 697–699.
- Flamen P, Vanderlinden B, Delatte P *et al.* Multimodality imaging can predict the metabolic response of unresectable colorectal liver metastases to radioembolization therapy with Yttrium-90 labeled resin microspheres. *Physics in Medicine and Biology* 2008; **53**: 6591–6603.
- Sharma RA, Wasan HS, Love SB *et al.* FOXFIRE: a phase III clinical trial of chemo-radio-embolisation as first-line treatment of liver metastases in patients with colorectal cancer. *Clinical Oncology (Royal College of Radiologists)* 2008; **20**: 261–263.
- Sharma R, van Hazel G, Morgan B *et al.* Radioembolization of liver metastases from colorectal cancer using yttrium-90 microspheres with concomitant systemic oxaliplatin, fluorouracil, and leucovorin chemotherapy. *Journal of Clinical Oncology* 2007; **25**: 1099–1106.

Mancini R, Carpanese L, Sciuto R *et al.* A multicentric phase II clinical trial on intra-arterial hepatic radiotherapy with ⁹⁰yttrium SIR-Spheres in unresectable, colorectal liver metastases refractory to i.v. chemotherapy: Preliminary results on toxicity and response rates. *In vivo* 2006; **20**: 711–714.

Lim L, Gibbs P, Yip D *et al.* A prospective evaluation of treatment with selective internal radiation therapy (SIR-Spheres) in patients with unresectable liver metastases from colorectal cancer previously treated with 5-FU based chemotherapy. *BMC Cancer* 2005; **5**: 132.

van Hazel G, Blackwell A, Anderson J *et al.* Randomised phase 2 trial of SIR-Spheres plus fluorouracil/leucovorin chemotherapy versus fluorouracil/leucovorin chemotherapy alone in advanced colorectal cancer. *Journal of Surgical Oncology* 2004; **88**: 78–85.

Gray B, van Hazel G, Hope M *et al.* Randomised trial of SIR-Spheres plus chemotherapy vs chemotherapy alone for treating patients with liver metastases from primary large bowel cancer. *Annals of Oncology* 2001; **12**: 1711–1720.

Abstracts on Prospective Clinical Studies in Colorectal Cancer Liver Metastases

Katz SC, Prince E, Cunetta M. *et al.* HITM-SIR: Phase Ib trial of CAR-T hepatic artery infusions and selective internal radiation therapy for liver metastases. *American Association for Cancer Research(AACR) Annual Meeting, 2017, Abs: CT109 / 29.*

van Hazel G, Heinemann V, Sharma N *et al.* Effect of age on treatment effect and tolerability of SIRT when added to mFOLFOX chemotherapy in patients with metastatic colorectal cancer (mCRC) – results from the SIRFLOX study. *Annals of Oncology* 2016; **27** (Suppl. 2): Abs. P-063.

Heinemann V, van Hazel G, Sharma N *et al.* Evaluation of depth of response within a volumetric model in patients with metastatic colorectal cancer: results of the SIRFLOX study. *Annals of Oncology* 2016; **27** (Suppl. 2): Abs. O-014.

van den Hoven A, Rosenbaum C, Elias S *et al.* Insights into the dose-response relationship of hepatic radioembolization with resin yttrium-90 microspheres: A prospective cohort study in patients with colorectal cancer liver metastases. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S6 Abs. 5.

van Hazel G, Heinemann V, Sharma N *et al.* SIRFLOX: Randomized trial comparing first-line mFOLFOX6 ± bevacizumab versus mFOLFOX6 + selective internal radiation therapy (SIRT) ± bevacizumab in patients with metastatic colorectal cancer (mCRC) – analysis by presence or absence of extra-hepatic metastases and bevacizumab treatment. *2015 ESMO WCGIC Meeting; Annals of Oncology* 2015; **26** (Suppl 4): Abs. O-019.

Narsinh K, Newton I, Kikolski S *et al.* Phase II study of yttrium-90 resin microspheres in treatment of colorectal adenocarcinoma metastatic to the liver after failure of first-line oxaliplatin-based chemotherapy: Preliminary results of the InSIRT trial. *Society of Interventional Radiology (SIR) 39th Annual Scientific Meeting. Journal of Vascular and Interventional Radiology* 2014; **25** (Suppl): S103 Abs. 221.

Birlew RA, El-Rayes E, Kauh J *et al.* Longitudinal quality of life assessment of patients with hepatic metastatic colorectal adenocarcinoma after treatment with transarterial radioembolization yttrium-90 therapy. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S37 Abs. 67.

Rose SC, Roeland E, Shimabukuro K *et al.* Single center prospective phase II trial of yttrium-90 radioembolization for treatment of colorectal liver metastases that have failed first line chemotherapy and prior to initiation of second line chemotherapy: study design and early results. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2011; Abs. 1306.4.

Murthy R, Mahvash A, Avritscher R *et al.* SIRTUXIRI: Yttrium-90 radioembolotherapy with cetuximab & irinotecan in colorectal hepatic metastases (NCT00766220). *The 3rd Annual Symposium on Clinical Interventional Oncology (CIO)* 2011; Abs.

Cosimelli M, Mancini R, Izzo F *et al.* Immunohistochemical expression of biomarkers in patients with highly chemorefractory colorectal liver metastases (mCRC) pre and post radioembolization (RE) with yttrium-90 resin microspheres. *ASCO Gastrointestinal Cancers Symposium* 2010; Abs. 494.

van Hazel G, Turner D, GebSKI V. Impact of ⁹⁰Y resin microspheres on health-related quality of life (HRQoL) in patients with colorectal cancer (CRC) liver metastases receiving first-line chemotherapy. *ASCO Gastrointestinal Cancers Symposium* 2009; Abs. 419.

Retrospective Studies in Colorectal Cancer Liver Metastases

- Reinders MTM, Mees E, Powerski MJ *et al.* Radioembolisation in Europe: a survey amongst CIRSE members. *Cardiovasc Intervent Radio* 2018 May 8. ePub doi: 10.1007/s00270-018-1982-4.
- Kennedy A, Cohn M, Coldwell DM *et al.* Erratum to updated survival outcomes and analysis of long-term survivors from the MORE study on safety and efficacy of radioembolization in patients with unresectable colorectal cancer liver metastases. *J Gastrointest Oncol*. 2018 **9** (2): E13–E14. ePub doi: 10.21037/jgo.2018.03.12.
- Weiner AA, Gui B, Newman NB *et al.* Predictors of Survival after Yttrium-90 Radioembolization for Colorectal Cancer Liver Metastases. Send to *J Vasc Interv Radiol*. 2018 **10**. P ii: S1051-0443(18)30960-6. doi: 10.1016/j.jvir.2018.02.020. [Epub ahead of print]
- O'Leary C, Grealley M, McCaffrey J *et al.* Single-institution experience with selective internal radiation therapy (SIRT) for the treatment of unresectable colorectal liver metastases. *Ir J Med Sci* 2018 Mar 6. ePub doi: 10.1007/s11845-018-1773-6.
- Dhir M, Zenati MS, Jones HL *et al.* Effectiveness of hepatic artery infusion (HAI) versus selective internal radiation therapy (Y90) for pretreated isolated unresectable colorectal liver metastases (IU-CRCLM). *Ann Surg Oncol* 2018; **25** (2): 550–557.
- Justinger C, Gruden J, Kouladouros K *et al.* Histopathological changes resulting from selective internal radiotherapy (SIRT). *J Surg Oncol* 2018 Feb 15. ePub doi: 10.1002/jso.24967.
- Türk G, Eldem G, Kılıçkap S *et al.* Outcomes of radioembolization in patients with chemorefractory colorectal cancer liver metastasis: a single-center experience. *J Gastrointest Cancer* 2018 Jan 22. ePub doi: 10.1007/s12029-018-0053-z.
- Willowson KP, Bernard EJ, Maher R *et al.* Changing therapeutic paradigms: Predicting mCRC lesion response to selective internal radionuclide therapy (SIRT) based on critical absorbed dose thresholds: a case study. *Asia Ocean J Nucl Med Biol* 2017; **5** (1): 66–69.
- Willowson KP, Hayes AR, Chan DLH *et al.* Clinical and imaging-based prognostic factors in radioembolisation of liver metastases from colorectal cancer: a retrospective exploratory analysis. *EJNMMI Res* 2017; **7** (1): 46. ePub doi: 10.1186/s13550-017-0292-1.
- Orwat KP, Beckham TH, Cooper SL *et al.* Pretreatment albumin may aid in patient selection for intrahepatic Y-90 microsphere transarterial radioembolization (TARE) for malignancies of the liver. *J Gastrointest Oncol* 2017; **8** (6): 1072–1078.
- Shah JL, Zendejas-Ruiz IR, Thornton LM *et al.* Neoadjuvant transarterial radiation lobectomy for colorectal hepatic metastases: a small cohort analysis on safety, efficacy, and radiopathologic correlation. *J Gastrointest Oncol* 2017; **8** (3): E43–E51.
- Cho M, Kesslet J, Park JJ *et al.* A single institute retrospective trial of concurrent chemotherapy with SIR-Spheres® versus SIR-Spheres® alone in chemotherapy-resistant colorectal cancer liver metastases. *J Gastrointest Oncol* 2017; **8** (4): 608–613.
- Kennedy A, Cohn M, Coldwell DM *et al.* Updated survival outcomes and analysis of long-term survivors from the MORE study on safety and efficacy of radioembolization in patients with unresectable colorectal cancer liver metastases. *J Gastrointest Oncol* 2017; **8** (4): 614–624.
- Pardo F, Sangro B, Lee RC *et al.* The Post-SIR-Spheres Surgery Study (P4S): Retrospective Analysis of Safety Following Hepatic Resection or Transplantation in Patients Previously Treated with Selective Internal Radiation Therapy with Yttrium-90 Resin Microspheres. *Annals of Surgical Oncology*. 2017; **24**(9): 2465-2473.
- Kalva SP, Rana RS, Liu R *et al.* Yttrium-90 radioembolization as salvage therapy for liver metastases from colorectal cancer. *American Journal of Clinical Oncology* 2017; **40**: 288–293.
- Schmeel FC, Simon B, Luetkens JA *et al.* Prognostic value of pretreatment diffusion-weighted magnetic resonance imaging for outcome prediction of colorectal cancer liver metastases undergoing ⁹⁰Y-microsphere radioembolization. *Journal of Cancer Research and Clinical Oncology* 2017 Mar 19; ePub doi: 10.1007/s00432-017-2395-5.
- Kennedy AS, Ball D, Cohen SJ *et al.* Baseline hemoglobin and liver function predict tolerability and overall survival of patients receiving radioembolization for chemotherapy-refractory metastatic colorectal cancer. *Journal of Gastrointestinal Oncology* 2017; **8**: 70–80.
- Seidensticker M, Powerski M, Seidensticker R *et al.* Cytokines and ⁹⁰Y-radioembolization: Relation to liver function and overall survival. *Cardiovascular Interventional Radiology* 2017 Mar 10; ePub doi: 10.1007/s00270-017-1622-4.

Ziv E, Bergen M, Yarmohammadi H *et al.* PI3K pathway mutations are associated with longer time to local progression after radioembolization of colorectal liver metastases. *OncoTarget* 2017 Feb 11; ePub doi: 10.18632/oncotarget.15278.

Bhooshan N, Sharma NK, Badiyan S *et al.* Pretreatment tumor volume as a prognostic factor in metastatic colorectal cancer treated with selective internal radiation to the liver using yttrium-90 resin microspheres. *Journal of Gastrointestinal Oncology* 2016; **7**: 931–937.

Janowski E, Timofeeva O, Chasovskikh S *et al.* Yttrium-90 radioembolization for colorectal cancer liver metastases in KRAS wild-type and mutant patients: Clinical and ccfDNA studies. *Oncology Reports* 2017; **37**: 57–65.

Wright GP, Marsh JW, Varma MK *et al.* Liver resection after selective internal radiation therapy with yttrium-90 is safe and feasible: A bi-institutional analysis. *Annals of Surgery* 2016 Nov 22; ePub doi: 10.1245/s10434-016-5697-y.

Soydal C, Kucuk NO, Balci D *et al.* Prognostic importance of the presence of early metabolic response and absence of extrahepatic metastasis after selective internal radiation therapy in colorectal cancer liver metastasis. *Cancer Biotherapy and Radiopharmaceuticals* 2016; **31**: 342–346.

Burnett NP, Akinwande O, Scoggins CR *et al.* Comparison of Yttrium-90 therapy for unresectable liver metastasis: glass versus biocompatible resin microspheres. *Journal of Radiation Oncology* 2016; ePub doi: 10.1007/s13566-016-0282-3.

Townsend AR, Chong LC, Karapetis C, Price TJ. Selective internal radiation therapy for liver metastases from colorectal cancer. *Cancer Treatment Reviews* 2016; **50**: 148–154.

Magnetta MJ, Ghodadra A, Lahti SJ *et al.* Connecting cancer biology and clinical outcomes to imaging in KRAS mutant and wild-type colorectal cancer liver tumors following selective internal radiation therapy with yttrium-90. *Abdominal Radiology* 2016 Sep 6; ePub doi: 10.1007/s00261-016-0875-8.

Narsinh KH, Van Buskirk M, Kennedy AS *et al.* Hepatopulmonary shunting: A prognostic indicator of survival in patients with metastatic colorectal adenocarcinoma treated with ⁹⁰Y radioembolization. *Radiology* 2016 Jul 19; ePub doi: 10.1148/radiol.2016152100.

Damm R, Seidensticker R, Ulrich G *et al.* ⁹⁰Y Radioembolization in chemo-refractory metastatic, liver dominant colorectal cancer patients: Outcome assessment applying a predictive scoring system. *BMC Cancer* 2016; **16**: 509.

Shady W, Sotirchos VS, Do RK *et al.* Surrogate imaging biomarkers of response of colorectal liver metastases after salvage radioembolization using ⁹⁰Y-loaded resin microspheres. *American Journal of Roentgenology* 2016 Jul 6; ePub doi: 10.2214/AJR.15.15202.

Schmeel FC, Simon B, Sabet A *et al.* Diffusion-weighted magnetic resonance imaging predicts survival in patients with liver-predominant metastatic colorectal cancer shortly after selective internal radiation therapy. *European Radiology* 2016 Jun 7; ePub doi: DOI 10.1007/s00330-016-4430-3.

Boas FE, Brody LA, Erinjeri JP *et al.* Quantitative measurements of enhancement on preprocedure triphasic CT can predict response of colorectal liver metastases to radioembolization. *American Journal of Roentgenology* 2016 Jun 1; ePub doi: 10.2214/AJR.15.15767.

Jakobs TF, Paprottka KJ, Raeßler F *et al.* Robust evidence for long-term survival with ⁹⁰Y radioembolization in chemorefractory liver-predominant metastatic colorectal cancer. *European Radiology* 2017; **27**: 113-119.

Srinivas SM, Nasr EC, Kunam VK *et al.* Administered activity and outcomes of glass versus resin ⁹⁰Y microsphere radioembolization in patients with colorectal liver metastases. *Journal of Gastrointestinal Oncology* 2016; **7**: 530-539.

Shady W, Kishore S, Gavane S *et al.* Metabolic tumor volume and total lesion glycolysis on FDG-PET/CT can predict overall survival after ⁹⁰Y radioembolization of colorectal liver metastases: A comparison with SUVmax, SUVpeak, and RECIST 1.0. *European Journal of Radiology* 2016; **85**: 1224–1231.

Maleux G, Deroose C, Laenen A *et al.* Yttrium-90 radioembolization for the treatment of chemorefractory colorectal liver metastases: Technical results, clinical outcome and factors potentially influencing survival. *Acta Oncologica* 2016; **55**: 486–95.

Kennedy AS, Ball DS, Cohen SJ *et al.* Safety and efficacy of radioembolization in elderly (≥ 70 Years) and younger patients with unresectable liver-dominant colorectal cancer. *Clinical Colorectal Cancer* 2016; **15**: 141–151.

Edalat F, Camacho JC, Kokabi N *et al.* Standardized Added Metabolic Activity (SAM) predicts survival after intra-arterial resin-based ⁹⁰Y radioembolization therapy in unresectable chemorefractory metastatic colorectal cancer to the liver. *Clinical Nuclear Medicine* 2016; **41**: e76–81.

Golfieri R, Mosconi C, Giampalma E *et al.* Selective transarterial radioembolisation of unresectable liver-dominant colorectal cancer refractory to chemotherapy. *La Radiologica Medica* 2015; **120**: 767–776.

Fendler WP, Ilhan H, Paprottka PM *et al.* Nomogram including pretherapeutic parameters for prediction of survival after SIRT of hepatic metastases from colorectal cancer. *European Radiology* 2015; **25**: 2693–2700.

Zacharias AJ, Jayakrishnan TT, Rajeev R *et al.* Comparative effectiveness of hepatic artery based therapies for unresectable colorectal liver metastases: A meta-analysis. *PLoS One* 2015; **10**: e0139940.

Maas L. Yttrium-90 radioembolization as a palliative treatment for liver tumors: A case study. *Clinical Journal of Oncology Nurses* 2015; **19**: 620–622.

Sofocleous CT, Violari EG, Sotirchos VS *et al.* Radioembolization as a salvage therapy for heavily pretreated patients with colorectal cancer liver metastases: Factors that affect outcomes. *Clinical Colorectal Cancer* 2015; **14**: 296–305.

Justinger C, Kouladouros K, Gärtner D *et al.* Liver resection after selective internal radiotherapy (SIRT): Proof of concept, initial survival, and safety. *Journal of Surgical Oncology* 2015; **112**: 436–442.

Lahti SJ, Xing M, Zhang D *et al.* KRAS status as an independent prognostic factor for survival after yttrium-90 radioembolization therapy for unresectable colorectal cancer liver metastases. *Journal of Vascular and Interventional Radiology* 2015; **26**: 1102–1111.

Pennington B, Akehurst R, Wasan H *et al.* Cost-effectiveness of selective internal radiation therapy using yttrium-90 resin microspheres in treating patients with inoperable colorectal liver metastases in the UK. *Journal of Medical Economics* 2015; **9**: 1–8.

De Souza A, Daly KP, Yoo J, Saif MW. Safety and efficacy of combined yttrium-90 resin radioembolisation with aflibercept and FOLFIRI in a patient with metastatic colorectal cancer. *Case Reports in Oncological Medicine* 2015; **2015**: 461823.

Kennedy AS, Ball D, Cohen SJ *et al.* Multicenter evaluation of the safety and efficacy of radioembolization in patients with unresectable colorectal liver metastases selected as candidates for ⁹⁰Y resin microspheres. *Journal of Gastrointestinal Oncology* 2015; **6**: 134–142.

Vouche M, Salem R, Miller FH *et al.* ⁹⁰Y radioembolization of colorectal cancer liver metastases: response assessment by contrast-enhanced computed tomography with or without PET-CT guidance. *Journal of Clinical Imaging* 2015; **39**: 454–462.

Sabet A, Meyer C, Aouf A *et al.* Early post-treatment FDG PET predicts survival after ⁹⁰Y microsphere radioembolization in liver-dominant metastatic colorectal cancer. *European Journal of Nuclear Medicine and Molecular Imaging* 2014; **42**: 370–376.

Kalva SP, Rana RS, Liu R *et al.* Yttrium-90 radioembolization as salvage therapy for liver metastases from colorectal cancer. *American Journal of Clinical Oncology* 2014 Nov 4; ePub doi: 10.1097/COC.0000000000000151.

Saxena A, Meteling B, Kapoor J *et al.* Is Yttrium-90 radioembolization a viable treatment option for unresectable, chemorefractory colorectal cancer liver metastases? A large single-center experience of 302 patients. *Annals of Surgical Oncology* 2014; **22**: 794–802.

Tohme S, Sukato D, Nace GW *et al.* Survival and tolerability of liver radioembolization: A comparison of elderly and younger patients with metastatic colorectal cancer. *HPB (Oxford)* 2014; **16**: 1110–1116.

Schonewolf CA, Patel B, Gensure RH *et al.* Patterns of failure in colorectal patients with liver metastases after yttrium-90 radioembolization. *American Journal of Clinical Oncology* 2014; **37**: 234–240.

Neofytou K, Wasan H, Mudan S. Safety of redo hepatectomy for colorectal liver metastases after selective interarterial radiation therapy: a case report. *Case Reports in Surgery* 2014; 712572.

Hrehoreț D, Alexandrescu S, Brașoveanu V *et al.* Liver transplantation in a patient with unresectable colorectal liver metastases - a case report. *Chirurgia (Bucur)* 2013; **108**: 719–724.

- Sharma R, Antony S, Anderson E. Clinical benefit and potential pitfalls in combining thermal ablation and radiation therapy to treat liver metastases. *Journal of Clinical Oncology* 2013; **31**: e404-e406.
- Fendler WP, Philippe Tiega DB, Ilhan H *et al*. Validation of several SUV-based parameters derived from ¹⁸F-FDG PET for prediction of survival after SIRT of hepatic metastases from colorectal cancer. *Journal of Nuclear Medicine* 2013; **54**: 1202–1208.
- Melucci E, Cosimelli M, Carpanese L *et al*. Decrease of survivin, p53 and Bcl-2 expression in chemorefractory colorectal liver metastases may be predictive of radiosensitivity after radioembolization with yttrium-90 resin microspheres. *Journal of Experimental and Clinical Cancer Research* 2013; **32**: 13.
- Soydal C, Kucuk ON, Gecim EI *et al*. The prognostic value of quantitative parameters of ¹⁸F-FDG PET/CT in the evaluation of response to internal radiation therapy with yttrium-90 in patients with liver metastases of colorectal cancer. *Nuclear Medicine Communications* 2013; **34**: 501–506.
- Bester L, Meteling B, Pocock N *et al*. Radioembolisation with yttrium-90 microspheres: An effective treatment modality for unresectable liver metastases. *Journal of Medical Imaging and Radiation Oncology* 2013; **57**: 72–80. [see sub-group analysis]
- Wang LM, Jani AR, Hill EJ, Sharma RA. Anatomical basis and histopathological changes resulting from selective internal radiotherapy for liver metastases. *Journal of Clinical Pathology* 2013; **66**: 205–211.
- Rosenbaum CE, van den Bosch MA, Veldhuis WB *et al*. Added value of FDG-PET imaging in the diagnostic workup for yttrium-90 radioembolisation in patients with colorectal cancer liver metastases. *European Radiology* 2013; **23**: 931–917.
- Fahmueller YN, Nagel D, Hoffmann RT *et al*. Immunogenic cell death biomarkers HMGB1, RAGE and DNase indicate response to radioembolisation therapy and prognosis in colorectal cancer patients. *International Journal of Cancer* 2013; **132**: 2349–2358.
- Zerizer I, Al-Nahhas A, Towey D *et al*. The role of early ¹⁸F-FDG PET/CT in prediction of progression-free survival after ⁹⁰Y radioembolization: comparison with RECIST and tumour density criteria. *European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39**: 1391–1399.
- Bester L, Meteling B, Pocock N *et al*. Radioembolization versus standard care of hepatic metastases: Comparative retrospective cohort study of survival outcomes and adverse events in salvage patients. *Journal of Vascular and Interventional Radiology* 2012; **23**: 96–105. [see sub-group analysis]
- Fong ZV, Palazzo F, Needleman L *et al*. Combined hepatic arterial embolization and hepatic ablation for unresectable colorectal metastases to the liver. *The American Surgeon* 2012; **78**: 1243–1248.
- Seidensticker R, Denecke T, Kraus P *et al*. Matched-pair comparison of radioembolization plus best supportive care versus best supportive care alone for chemotherapy refractory liver-dominant colorectal metastases. *Cardiovascular and Interventional Radiology* 2012; **35**: 1066–1073.
- Martin LK, Cucci A, Wei L, Rose J *et al*. Yttrium-90 radioembolization as salvage therapy for colorectal cancer with liver metastases. *Clinical Colorectal Cancer* 2012; **11**: 195–199.
- Hadaki M, Praseedom R, Brais R *et al*. Selective internal radiation therapy with ⁹⁰Y SIR-Spheres microspheres for non-resectable colorectal metastases in the liver. *BMJ Case Reports* 2011; **2011**: bcr0120113793.
- Kosmider S, Tan TT, Yip D *et al*. Radioembolization in combination with systemic chemotherapy as first-line therapy for liver metastases from colorectal cancer. *Journal of Vascular and Interventional Radiology* 2011; **22**: 780–786.
- Nace GW, Steel JL, Amesur N *et al*. Yttrium-90 radioembolization for colorectal cancer liver metastases: a single institution experience. *International Journal of Surgical Oncology* 2011; 571261.
- Chua TC, Bester L, Saxena A, Morris DL. Radioembolization and systemic chemotherapy improves response and survival for unresectable colorectal liver metastases. *Journal of Cancer Research Clinical Oncology* 2011; **137**: 865–873.
- Chua TC, Bester L, Akther J, Morris DL. Successful right hepatectomy after four treatments of yttrium-90 microspheres (SIR-Spheres(R)) and concomitant FOLFOX as bridging therapy to resection of colorectal liver metastases. *Anticancer Research* 2010; **30**: 3005–3007.
- Dudeck O, Zeile M, Wybranski C *et al*. Early prediction of anticancer effects with diffusion-weighted MR imaging in patients with colorectal liver metastases following selective internal radiotherapy. *European Radiology* 2010; **20**: 2699–2706.

- Pini S, Pinto C, Angelelli B *et al.* Multimodal sequential approach in colorectal cancer liver metastases: hepatic resection after yttrium-90 selective internal radiation therapy and cetuximab rescue treatment. *Tumori* 2010; **96**: 157–159.
- Cianni R, Urigo C, Notarianni E *et al.* Selective internal radiation therapy with SIR-Spheres for the treatment of unresectable colorectal hepatic metastases. *Cardiovascular and Interventional Radiology* 2009; **32**: 1179–1186.
- Campbell JM, Wong CO, Muzik O *et al.* Early dose response to Yttrium-90 microsphere treatment of metastatic liver cancer by a patient-specific method using single photon emission computed tomography and positron emission tomography. *International Journal of Radiation Oncology, Biology and Physics* 2009; **74**: 313–320.
- Siddiqi NH, Devlin PM. Radiation lobectomy—A minimally invasive treatment model for liver cancer: Case report. *Journal of Vascular and Interventional Radiology* 2009; **20**: 664–669.
- Jakobs TF, Hoffmann RT, Dehm K *et al.* Hepatic yttrium-90 radioembolization of chemotherapy-refractory colorectal cancer liver metastases. *Journal of Vascular and Interventional Radiology* 2008; **19**: 1187–1195.
- Murthy R, Eng C, Krishnan S *et al.* Hepatic yttrium-90 radioembolotherapy in metastatic colorectal cancer treated with cetuximab or bevacizumab. *Journal of Vascular and Interventional Radiology* 2007; **18**: 1588–1591.
- Garrean S, Muhs A, Bui JT *et al.* Complete eradication of hepatic metastasis from colorectal cancer by Yttrium-90 SIRT. *World Journal of Gastroenterology* 2007; **13**: 3016–3019.
- Lin M, Shon IH, Wilson R *et al.* Treatment response in liver metastases following ⁹⁰Y SIR-Spheres: an evaluation with PET. *Hepato-Gastroenterology* 2007; **54**: 910–912.
- Boppudi S, Wickremesekera S, Nowitz M *et al.* Evaluation of the role of CT in the assessment of response to selective internal radiation therapy in patients with colorectal liver metastases. *Australasian Radiology* 2006; **50**: 570–577.
- Kennedy A. ⁹⁰Y-microsphere brachytherapy is effective in treating unresectable colorectal liver metastases. *American Journal of Hematology/Oncology Review* October 2006; **5**: 1–5.
- Stubbs R, O'Brien I, Correia M. Selective internal radiation therapy with ⁹⁰Y-microspheres for colorectal liver metastases: single-centre experience with 100 patients. *ANZ Journal of Surgery* 2006; **76**: 696–703. [see accompanying editorial by Morris D under *Review Articles/Colorectal Cancer*]
- Kennedy A, Coldwell D, Nutting C *et al.* Resin ⁹⁰Y-microsphere brachytherapy for unresectable colorectal metastases: modern USA experience. *International Journal of Radiation Oncology, Biology and Physics* 2006; **65**: 412–425.
- Murthy R, Xiong H, Nunez R *et al.* Yttrium 90 resin microspheres for the treatment of unresectable colorectal hepatic metastases after failure of multiple chemotherapy regimens: Preliminary results. *Journal of Vascular and Interventional Radiology* 2005; **16**: 937–945.
- Stubbs R, Wickremesekera S. Selective internal radiation therapy (SIRT): a new modality for treating patients with colorectal liver metastases. *HPB* 2004; **6**: 133–139.
- Stubbs R, Cannan R, Mitchell A. Selective internal radiation therapy with yttrium-90 microspheres for extensive liver metastases. *Journal of Gastrointestinal Surgery* 2001; **5**: 294–302.
- Stubbs R, Cannan R, Mitchell A. Selective internal radiation therapy (SIRT) with ⁹⁰yttrium microspheres for extensive colorectal liver metastases. *Hepato-Gastroenterology* 2001; **48**: 333–337.
- Gray B, van Hazel G, Buck M *et al.* Treatment of colorectal liver metastases with SIR-Spheres plus chemotherapy. *GI Cancer* 2000; **3**: 249–257.
- Stubbs R, Cannan R, Mitchell A *et al.* An initial experience with selective internal radiation therapy (SIRT) for non-resectable colorectal liver metastases. *GI Cancer* 1999; **3**: 135–143.
- Stubbs R, Cannan R. Active treatment of colorectal hepatic metastases. *New Zealand Family Physician* 1999; **26**.
- Gray B, Anderson J, Burton M *et al.* Regression of liver metastases following treatment with yttrium-90 microspheres. *ANZ Journal of Surgery* 1992; **62**: 105–110.
- Gray B, Burton M, Kelleher D *et al.* Selective internal radiation (SIR) therapy for treatment of liver metastases: measurement of response rate. *Journal of Surgical Oncology* 1989; **42**: 192–196.

Abstracts on Retrospective Studies in Colorectal Cancer Liver Metastases

- Moutinho V, Connell LC, D'Angelica MI *et al.* Hepatic artery therapies for unresectable colorectal liver metastases: Pooled survival analysis of 968 patients from TACE, yttrium-90, and HAI studies. *ASCO Gastrointestinal Cancers Symposium 2017*; **35** (Suppl 4S): Abs. 747.
- Kennedy AS, Cohn M, Coldwell DM *et al.* Unresectable colorectal cancer liver metastases treated with radioembolization: Updated survival analysis of the MORE study. *ASCO Gastrointestinal Cancers Symposium 2017*; **35** (Suppl 4S): Abs. 666.
- Ayoola A, Vantandoust S, Roy A *et al.* Selective internal radiation therapy (SIRT) in metastatic colorectal cancer (mCRC): Safety, efficacy and survival outcomes from the South Australian registry. *ESMO Congress, Annals of Oncology 2016*; **27** (Suppl 6) Abs: P492.
- Cho MT, Kessler J, Park J *et al.* A single institute retrospective trial of concurrent chemotherapy with SIR-Sphere versus SIR-Sphere alone in patients with chemotherapy-resistant colorectal cancer liver metastases. *Journal of Clinical Oncology 2016*; **34** (Suppl 4S) Abs: 770.
- Cortesi E, Masi G, Mancini M *et al.* Radioembolization (SIRT) as a consolidation treatment in colorectal liver metastases after first line chemotherapy: Efficacy safety. *Journal of Clinical Oncology 2016*; **34** (Suppl 4S) Abs: e15007.
- Bergen M, Erinjeri J, Yarmohammadi H *et al.* PIK3CA mutation status associated with improved tumor response to yttrium-90 radioembolization (Y90) of chemorefractory liver-dominant colorectal cancer (CRC) metastases. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2016*; **27** (Suppl): S153-154 Abs.339.
- Naydenov A, Harris W, Johnson G *et al.* Tumor vascularity does not predict the response of colorectal cancer liver metastases to yttrium-90 radioembolization. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2016*; **27** (Suppl): S62–S63 Abs. 131.
- Lee B, Wong H-L, Field KM *et al.* Use and impact of selective internal radiation therapy (SIRT) in routine care patients with metastatic colorectal cancer (mCRC). *ASCO Gastrointestinal Cancers Symposium 2016*; Abs. 742.
- Taieb J, Pennington B, Sennfält K *et al.* Cost effectiveness of selective internal radiation therapy (SIRT) using yttrium-90 resin microspheres for the treatment of patients with inoperable colorectal liver metastases in France. *2015 ESMO WCGIC Meeting; Annals of Oncology 2015*; **26** (Suppl 4): Abs P-230.
- Shady W, Sotirchos VS, Pandit-Taskar N *et al.* Enhancement patterns of colorectal liver metastases on pre-sirt mapping CT arteriography correlates with FDG-PET SUV_{max} metabolic response. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2015*; **26** (Suppl): S189 Abs. 433.
- Schön MR, Pardo F, Sangro B on behalf of the P4S Investigators. The Post-SIR-Spheres Surgery Study (P4S): Influence of prior chemotherapy on survival following hepatic resection in patients with metastatic colorectal cancer previously treated with Selective Internal Radiation Therapy (SIRT). Presented at the *11th International Congress of the European-African Hepato-Pancreato-Biliary Association (E-AHPBA) 2015*; Abs. 397.
- Magnetta MJ, Zhang D, Steven L *et al.* EASL and mRECIST better predict survival after yttrium-90 radioembolization therapy compared to RECIST and WHO in metastatic unresectable colorectal cancer in the liver. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Paper 9.
- O'Hara R, Davis NN, Hardman RL *et al.* Association of three common proto-oncogene mutations to the response of radioembolization for hepatic colorectal metastasis. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Paper 8.
- Volkan-Salanci B, Bozkurt FM, Peynircioglu B *et al.* The value of F-18 FDG PET/CT for the early response evaluation of the Y-90 microsphere therapy in colorectal cancer patients with liver metastasis. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2014*; **41** (Suppl 2): Abs. OP431.
- Goldin D, Reich S, George D *et al.* Carcinoembryonic antigen response after initial single- or multi-session radioembolization for colorectal cancer: analysis of cumulative delivered radioactivity and dose. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2014*; Abs. 3104.4.
- Pennington B, Sennfält K, Cosimelli M *et al.* Selective internal radiotherapy (SIRT) using resin yttrium-90 microspheres for chemotherapy-refractory metastatic colorectal cancer: an Italian cost-effectiveness analysis. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2014*; Abs.P-237.

- Kennedy A, Ball D, Cohen SJ *et al.* Pretreatment laboratory values predict survival following radioembolization of liver-dominant colorectal metastases. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e9 Abs.
- Leoni C, Mosconi C, Giampalma E *et al.* Response and survival after ⁹⁰Y transarterial radioembolization (TARE) of colorectal liver metastases refractory to chemotherapy. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2013; Abs. P-277.
- Purysko A, Shrikanthan S, Srinivas S. Survival and adverse events after radioembolization of liver metastases from colorectal cancer using glass or resin based yttrium-90 microspheres. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2013; **54** (Suppl 2): Abs. 1385.
- Goldin D, Berry SK, Mansoor BM *et al.* Survival after radioembolization for metastatic colorectal cancer: search for prognostic factors. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S36-37 Abs. 66.
- Lam MG, Louie JD, Abdelmaksoud M *et al.* Dose-response analysis in metastatic colorectal cancer patients treated with hepatic yttrium-90 radioembolization. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S37 Abs. 68.
- Kennedy AS, Ball D, Steven J. Cohen SJ *et al.* Hepatic imaging response to ⁹⁰Y-microsphere therapy administered for tumor progression during systemic chemotherapy in patients with colorectal liver metastases. *ASCO Gastrointestinal Cancers Symposium* 2013; Abs. 270.
- Goldin D, Mansoor B, Berry S *et al.* Bevacizumab effects on Y-90 microsphere infusion, tumor-to-normal vascularity ratio, and survival in metastatic colorectal cancer. *15th Annual Symposium on Clinical Interventional Oncology (CIO)* 2013; Abs 13.
- Lawal T, Prajapati H, El Rayes B *et al.* Salvage Yttrium-90 radioembolization after failed chemotherapy for colorectal cancer liver metastases. *American Association for the Study of Liver Diseases (AASLD) Congress, Hepatology* 2012; **56** (Suppl 1): Abs. 1380.
- Sabet A, Ezziddin S, Muckle M *et al.* ¹⁸F-FDG-PET/CT in planning of selective internal radiation therapy of colorectal liver metastases. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP173.
- Schoen M, Kant D, Dietrich J *et al.* Selective internal radiation therapy (SIRT) prior to liver resection for colorectal liver metastases. *International Hepato-Pancreato-Biliary Association Congress* 2012; Abs. C443.
- Coldwell D, Schacht M, Sharma V. Differential response to radioembolization for colorectal cancer metastases to the liver in KRAS mutant patients. *World Conference on Interventional Oncology (WCIO) meeting* 2012; Abs. 48.
- Leoni C, Mosconi C, Giampalma E *et al.* Response and survival after ⁹⁰Y radioembolisation of colorectal liver metastases refractory to chemotherapy. *European Society of Radiology ECR* 2012; Abs. C-0735.
- Savin MA, Vartanian SA, Metz T *et al.* Early imaging accuracy post Y90 radioembolization for liver metastases from colorectal cancer. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S70-S71 Abs. 169.
- Rosenbaum CE, Smits M, Seinstra BA *et al.* Diffusion-weighted magnetic resonance imaging for early tumor response assessment after Yttrium-90 radioembolization in patients with colorectal cancer liver metastases. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S84 Abs. 204.
- Grabowski SF, Nichols EM, Kudryasheva S *et al.* The efficacy of selective internal radiation therapy (SIRT) with yttrium-90 (Y90) is enhanced when given in low volume disease and in conjunction with other liver-directed therapies. *53rd Annual Meeting of American Society for Radiation Oncology (ASTRO), International Journal of Radiation Oncology, Biology and Physics* 2011; **81** (2 Suppl): S353-S354 Abs. 2296.
- Ulrich G, Zeile M, Großer OS *et al.* Does the intratumoral uptake pattern of Tc-99m-MAA allow a prediction of response to yttrium-90-radioembolization in patients with colorectal liver metastases? *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. P743.
- Cove-Smith L, Wilson G. Efficacy and toxicity of selective internal radiation therapy (SIRT) with yttrium 90 microspheres for the treatment of unresectable hepatic tumours: a retrospective analysis of

58 patients. *13th World Congress on Gastrointestinal Cancer, Annals of Oncology* 2011; **22** (Suppl 5): v64 Abs. P-0150.

Paprottka PM, Hoffmann RT, Trumm CG *et al.* ⁹⁰Yttrium-radioembolization of chemotherapy-refractory colorectal cancer liver metastases. *World Conference on Interventional Oncology (WCIO) meeting* 2011; Abs. 52.

Paprottka PM, Hoffmann RT, Räßler F *et al.* ⁹⁰Yttrium-radioembolisation of chemotherapy-refractory colorectal cancer liver metastases. *European Congress of Radiology* 2011; Abs. B-160.

Cucci AR, Martin EW Jr., Bloomston M *et al.* Y-90 radioembolization in the treatment of colorectal cancer that is metastatic to the liver. *ASCO Gastrointestinal Cancers Symposium, Journal of Clinical Oncology* 2011; **29** (Suppl 4): Abs. 593.

Ju AW, Hamidi M, Bradley KA *et al.* The use of bevacizumab prior to radioembolization of colorectal liver metastases with yttrium-90 resin microspheres. *52nd Annual Meeting of American Society for Radiation Oncology (ASTRO), International Journal of Radiation Oncology, Biology and Physics* 2010; **78** (3 Suppl): S318 Abs. 2257.

Tie J, Yip D, Dowling R *et al.* Radioembolization and systemic chemotherapy in patients with hepatic metastases from primary colorectal cancer. *ESMO Congress, Ann Oncol* 2010; **21** (Suppl 8): Abs. 698.

Tie J, Kosmider S, Yip D *et al.* Selective internal radiation therapy combined with systemic chemotherapy as a first-line treatment for unresectable liver-dominant colorectal cancer. *12th World Congress on Gastrointestinal Cancer, Annals of Oncology* 2010; **21** (Suppl 7): Abs. P-0137.

Wasan HS, Gungor H, Medani H *et al.* Survival of metastatic colorectal cancer patients treated with concurrent ⁹⁰Y chemo-radioembolisation (SIRT + modified FOLFOX) after failure of all lines of conventional therapy. *12th World Congress on Gastrointestinal Cancer, Annals of Oncology* 2010; **21** (Suppl 7): Abs. P-0183.

Gibbs P, Stubbs RS, Pavlakis N *et al.* Durable disease-free survival without resection of target lesions following radioembolisation with yttrium-90 resin microspheres in patients with colorectal liver metastases. *European Multidisciplinary Colorectal Cancer Congress, Annals of Oncology* 2010; **21** (Suppl 1): i50 Abs. P95.

Sangro B, Chopitea A, Rodriguez J *et al.* Radioembolization using Y90-labeled resin microspheres (Y90-RE) as consolidation treatment after 1st-line chemotherapy (CxT) for liver metastases from colorectal cancer (CRC). *ASCO Gastrointestinal Cancers Symposium* 2010; Abs. 250.

Öz II, Peker A, Küçük Ö *et al.* Treatment of unoperable and chemorefractory liver metastasis of colorectal cancer by yttrium-90 resin microspheres: Experience at Ankara University Medical Faculty. *European Association of Nuclear Medicine (EANM) Conference* 2009; Abs. P629.

Mutha PR, Madoff DC, Mahvash A *et al.* Extrahepatic progression of hepatic-only metastatic colorectal cancer: Impact on combinatorial (systemic + local) therapy clinical trial design. *Society of Interventional Radiology (SIR) 34th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2009; **26** (2S): S63 Abs. 162.

Kennedy AS, Kreuk P, Jakobs T, Dezarn WA. Effects of anti-angiogenic therapy and chemotherapy on ⁹⁰Y-microsphere treatment of colorectal liver metastases. *20th International Congress on Anti Cancer Treatment (ICACT)* 2009; Abs. IC/AB159.

Gurajala RKR, Sinha A, Chandakacharla R *et al.* A new technique for the treatment of colorectal cancer liver metastases with SIRT Yttrium-90 microspheres: A review of the first five cases. *European Association of Nuclear Medicine (EANM) Conference* 2008; Abs. PW103.

Tan TH, Kosmider S, Yip D, Gibbs P. Clinical experience of selective internal radiation therapy in combination with systemic chemotherapy as first-line therapy in patients with unresectable hepatic metastases from colorectal cancer. *ASCO Annual Meeting, Journal of Clinical Oncology* 2008; **26** (May 20 Supplement): Abs. 15080.

Kennedy A. Long-lived complete responders following radioembolization: Does this challenge the orthodox belief of disease progression? *2nd European Symposium on Liver-Directed Cancer Therapies using Microspheres* February 2008.

Stubbs R, O'Brien I, Correia M. Selective internal radiation therapy for colorectal liver metastases: single-centre experience with 100 patients. *7th World Congress of the International Hepato-Pancreato-Biliary Association (IHPBA 2006)*; Abs.

Murthy R, Habbu A, Richey S *et al.* Implications of patterns of metastases of mCRC on liver directed therapy in patients undergoing combination systemic treatment with irinotecan and cetuximab. *World Conference on Interventional Oncology (WCIO) meeting* 2006; Abs. 8130.

Rivet M. Monitoring ⁹⁰Y-SIR-Sphere treatment response with ¹⁸F-FDG-PET. *36th Annual Scientific Meeting of the Australian and New Zealand Society of Nuclear Medicine* April 2006; Abs. 14.

Kennedy A, Coldwell D, Nutting C *et al.* Liver Brachytherapy for unresectable Colorectal Metastases: US Results 2000–2004. *ASCO Gastrointestinal Cancers Symposium* 2005; Abs. 145.

Huie M, Greiner L, Thomas J *et al.* Institutional series of selective internal radiation therapy (SIRT) for liver predominant metastatic colorectal cancer. *Journal of Clinical Oncology* 2004; **22** 14S, Abs. 3665.

Geller DA, Carr BI, Amesur N *et al.* Responses in chemotherapy-refractory liver metastases from colon cancer to single dose hepatic artery ⁹⁰Y microspheres. *ASCO Annual Meeting, Proceedings of the American Society of Clinical Oncology* 2003; **22**: Abs. 1489.

Hepatocellular Carcinoma

Prospective Clinical Studies in Hepatocellular Carcinoma

Teo JY, Allen JC, Ng DCE *et al.* Prospective study to determine early hypertrophy of the contra-lateral liver lobe after unilobar, Yttrium-90, selective internal radiation therapy in patients with hepatocellular carcinoma. *Surgery* 2018; **163** (5): 1008–1013.

Vilgrain V, Pereira H, Dinut A *et al.* Negative phase 3 study of ⁹⁰Y microspheres versus sorafenib in HCC - Authors' reply. *Lancet Oncol* 2018; **19** (2): e71.

Garin E, Rolland Y, Campillo-Gimenez B *et al.* Negative phase 3 study of ⁹⁰Y microspheres versus sorafenib in HCC. *Lancet Oncol* 2018; **19** (2): e70.

Llovet JM, Finn RS. Negative phase 3 study of ⁹⁰Y microspheres versus sorafenib in HCC. *Lancet Oncol* 2018; **19** (2): e69.

Kokudo T, Kokudo N, Hasegawa K. Negative phase 3 study of ⁹⁰Y microspheres versus sorafenib in HCC. *Lancet Oncol* 2018; **19** (2): e68.

Chew V, Lee YH, Pan L *et al.* Immune activation underlies a sustained clinical response to Yttrium-90 radioembolisation in hepatocellular carcinoma. *Gut* 2018 Feb 13. ePub doi: 10.1136/gutjnl-2017-315485.

Gill J, Baiceanu A, Clark PJ *et al.* Insights into the hepatocellular carcinoma patient journey: results of the first global quality of life survey. *Future Oncol* 2018 Mar 15. ePub doi: 10.2217/fon-2017-0715.

Rognoni C, Ciani O, Sommariva S *et al.* Cost-effectiveness analysis of treatments involving radioembolization in intermediate-stage hepatocellular carcinoma. *J Comp Eff Res* 2018; **7** (3): 209–221.

Chow PKH, Gandhi M, Tan SB *et al.* SIRveNIB: Selective internal radiation therapy versus sorafenib in asia-pacific patients with hepatocellular carcinoma. *J Clin Oncol* 2018 Mar 2: JCO2017760892. ePub doi: 10.1200/JCO.2017.76.0892.

Contentin CE, Mourad A, Lahmek P *et al.* Hepatocellular carcinoma is diagnosed at a later stage in alcoholic patients: Results of a prospective, nationwide study. *Cancer* 2018; **124** (9): 1964–1972.

Lemaire M, Lucidi V, Bouazza F *et al.* Selective internal radiation therapy (SIRT) before partial hepatectomy or radiofrequency destruction for treatment of hepatocellular carcinoma in cirrhotic patients: a feasibility and safety pilot study. *HPB (Oxford)* 2018 Feb 24. pii: S1365-182X(18)30016-9. ePub doi: 10.1016/j.hpb.2018.01.006.

Ahmed AF, Samreen N, Grajo JR *et al.* Angiosomal radiopathologic analysis of transarterial radioembolization for the treatment of hepatocellular carcinoma. *Abdom Radiol (NY)* 2017 Oct 20. ePub doi: 10.1007/s00261-017-1354-6.

Ince S, Karaman B, Alagoz E *et al.* Yttrium-90 (Y-90) Resin microsphere therapy for patients with unresectable hepatocellular carcinoma: A single-center experience. *J Gastrointest Cancer* 2017; **48** (3): 281.

Kaseb AO. Grant, deny, or reassess the role of yttrium-90 in hepatocellular carcinoma? *Lancet Oncology* 2017 October 26 ; ePub doi: 10.1016/S1470-2045(17)30687-3 [Vilgrain V, Pereira H, Assenat E *et al.* Efficacy and safety of selective internal radiotherapy with yttrium-90 resin microspheres compared with sorafenib in locally advanced and inoperable hepatocellular carcinoma (SARAH): an open-label randomised controlled phase 3 trial. *Lancet Oncology* 2017; **18**: 1560–1561.]

Vilgrain V, Pereira H, Assenat E *et al.* Efficacy and safety of selective internal radiotherapy with yttrium-90 resin microspheres compared with sorafenib in locally advanced and inoperable hepatocellular carcinoma (SARAH): an open-label randomised controlled phase 3 trial. *Lancet Oncology* 2017; **18**: 1624–1636.

GebSKI V, Gibbs E, Gandhi M *et al.* VESPRO: An individual patient data prospective meta-analysis of selective internal radiation therapy versus Sorafenib for advanced, locally advanced, or recurrent hepatocellular carcinoma of the SARAH and SIRveNIB trials. *JMIR Research Protocols* 2017; **6**: e17.

Rotellar F, Zozaya G, Martí-Cruchaga P, Pardo F. Laparoscopic right hepatectomy after radioembolization using yttrium-90 resin microspheres. *Surgical Oncology* 2017; **26**: 71–72.

Gandhi M, Choo SP, Hua Thng C *et al.* Single administration of Selective Internal Radiation Therapy versus continuous treatment with sorafenib in locally advanced hepatocellular carcinoma (SIRveNIB): study protocol for a phase iii randomized controlled trial. *BMC Cancer* 2016; **16**: 856.

- Ricke J, Bulla K, Kolligs F *et al.* Safety and toxicity of radioembolization plus sorafenib in advanced hepatocellular carcinoma (HCC): Analysis of the European multicenter trial SORAMIC. *Liver International* 2015; **35**: 620–626.
- Kolligs FT, Bilbao JI, Jakobs T *et al.* Pilot randomized trial of selective internal radiation therapy versus chemoembolization in unresectable hepatocellular carcinoma. *Liver International* 2015; **35**: 1715–1721.
- Pitton MB, Kloeckner R, Ruckes C *et al.* Randomized comparison of selective internal radiotherapy (SIRT) versus drug-eluting bead transarterial chemoembolization (DEB-TACE) for the treatment of hepatocellular carcinoma. *Cardiovascular and Interventional Radiology* 2015; **38**: 352–360.
- Fernandez-Ros NF, Iñarrairaegui M, Paramo JA *et al.* Radioembolization of hepatocellular carcinoma activates liver regeneration, induces inflammation and endothelial stress and activates coagulation. *Liver International* 2015; **35**: 1590–1596.
- Kim DY, Park BJ, Kim YH *et al.* Radioembolization with yttrium-90 resin microspheres in hepatocellular carcinoma: A multicenter prospective study. *American Journal of Clinical Oncology* 2015; **38**: 495–501.
- Vilgrain V, Abdel-Rehim M, Sibert A *et al.* Radioembolisation with yttrium 90 microspheres versus sorafenib for treatment of advanced hepatocellular carcinoma (SARAH): Study protocol for a randomised controlled trial. *Trials* 2014; **15**: 474.
- Chow PK, Poon DY, Khin MW *et al.* Asia-Pacific Hepatocellular Carcinoma Trials Group. Multicenter phase II study of sequential radioembolization-sorafenib therapy for inoperable hepatocellular carcinoma. *PLoS One* 2014; **9**: e90909.
- Chow P, Ricke J, Malferteiner P, Vilgrain V. Evolving clinical evidence for selective internal radiation therapy in hepatocellular carcinoma. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 30–33.
- Sangro B, Bilbao JI, Boan J *et al.* Radioembolization using ⁹⁰Y-resin microspheres for patients with advanced hepatocellular carcinoma. *International Journal of Radiation Oncology, Biology and Physics* 2006; **66**: 792–800.
- Lau W, Ho S, Leung T *et al.* Selective internal radiation therapy for non-resectable hepatocellular carcinoma with intraarterial infusion of 90-yttrium microspheres. *International Journal of Radiation Oncology, Biology and Physics* 1998; **40**: 583–592.
- Lau W, Leung W, Ho S *et al.* Treatment of inoperable hepatocellular carcinoma with intra-hepatic arterial yttrium-90 microspheres: a phase I and II study. *British Journal of Cancer* 1994; **70**: 994–999.

Abstracts on Prospective Clinical Studies in Hepatocellular Carcinoma

- Ricke J, Sangro B, Amthauer H *et al.* The impact of combining Selective Internal Radiation Therapy (SIRT) with Sorafenib on overall survival in patients with advanced hepatocellular carcinoma: The SORAMIC trial palliative cohort. *Journal of Hepatology* 2018; **68** (Suppl 1): Abs. LBO-005.
- Lee SD, Hu C, Peng NJ. Incidental thyroid nodule noted on intra-arterial hepatic MAA scan before ⁹⁰Y-SIRT. *Clinical Nuclear Medicine* 2017 May 19; ePub doi: 10.1097/RLU.0000000000001690.
- İnce S, Karaman B, Alagoz E *et al.* Yttrium-90 (Y-90) resin microsphere therapy for patients with unresectable hepatocellular carcinoma: A single-center experience. *Journal of Gastrointestinal Cancer* 2017 Jun 20; ePub doi: 10.1007/s12029-017-9968-z.
- Vilgrain V *et al.* Selective internal radiation therapy is better tolerated compared to sorafenib, but does not increase overall survival in patients with HCC. *Journal of Hepatology* 2017; **66** (Suppl 1): Abs. GS-012.
- Manfredi M, Carbonatto P, Codegone A *et al.* Downstaging intermediate and advanced HCC using radioembolization therapy, a difficult but achievable strategy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. OP013.
- Fischman AM, Lewis SC, Patel R *et al.* Prospective, randomized study of coiling vs surefire infusion system in Y-90: Clinical outcomes in HCC patients—subgroup analysis of safety and efficacy from the COSY Trial. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2014; Abs.3104.6.
- Ricke J, Schuette K, I. Graziadei W *et al.* Evaluation of sorafenib in combination with local microtherapy guided by gadolinium-EOB-DTPA enhanced MRI in patients with inoperable

hepatocellular carcinoma. *ASCO Annual Meeting, Journal of Clinical Oncology* 2011; **29** (Suppl): Abs. TPS175.

Retrospective Studies in Hepatocellular Carcinoma

Reinders MTM, Mees E, Powerski MJ *et al.* Radioembolisation in Europe: a survey amongst CIRSE members. *Cardiovasc Intervent Radiol* 2018 May 8. ePub doi: 10.1007/s00270-018-1982-4.

Wehrenberg-Klee E, Goyal L, Dugan M *et al.* Y-90 radioembolization combined with a PD-1 inhibitor for advanced hepatocellular carcinoma. *Cardiovasc Intervent Radiol* 2018 **29**. ePub doi: 10.1007/s00270-018-1993-1.

Tohme S, Bou Samra P, Kaltenmeier C *et al.* Radioembolization for hepatocellular carcinoma: A nationwide 10-year experience. *J Vasc Interv Radiol* 2018 **26**. ePub doi: 10.1016/j.jvir.2018.03.018.

Lucà MG, Nani R, Schranz M *et al.* Treatment of hepatocellular carcinoma: a cost analysis of yttrium-90 transarterial radioembolization versus sorafenib. *Future Oncol* 2018 Apr; **14** (8): 727–735.

Thayer D, Noda C, Charalel R *et al.* Survival comparison of hepatocellular carcinoma patients treated with radioembolization versus nonoperative/interventional treatment. *J Comp Eff Res* 2018; **7** (4): 343–356.

Mosconi C, Cucchetti A, Pettinato C *et al.* Validation of response to yttrium-90 radioembolization for hepatocellular carcinoma with portal vein invasion. *J Hepatol* 2018 Mar 14. ePub doi: 10.1016/j.jhep.2018.02.027.

Sangro B, Maini CL, Ettorre GM *et al.* Radioembolisation in patients with hepatocellular carcinoma that have previously received liver-directed therapies. *Eur J Nucl Med Mol Imaging* 2018 Mar 7. ePub doi: 10.1007/s00259-018-3968-5.

Kwon JH, Kim GM, Han K *et al.* Safety and efficacy of transarterial radioembolization combined with chemoembolization for bilobar hepatocellular carcinoma: a single-center retrospective study. *Cardiovasc Intervent Radiol* 2018; **41** (3): 459–465.

Wang TH, Huang PI, Hu YW *et al.* Combined Yttrium-90 microsphere selective internal radiation therapy and external beam radiotherapy in patients with hepatocellular carcinoma: From clinical aspects to dosimetry. *PLoS One* 2018; **13** (1): e0190098.

Kulik L, Heimbach JK, Zaiem F *et al.* Therapies for patients with hepatocellular carcinoma awaiting liver transplantation: A systematic review and meta-analysis. *Hepatology* 2018; **67** (1): 381–400.

Affonso BB, Motta-Leal-Filho JMD, Cavalcante FA Jr *et al.* Aspects of images in magnetic resonance of liver tumors treated with transarterial selective internal radiotherapy with yttrium-90. *Einstein (Sao Paulo)*. 2018; **16** (1): eRC4015.

Orwat KP, Beckham TH, Cooper SL *et al.* Pretreatment albumin may aid in patient selection for intrahepatic Y-90 microsphere transarterial radioembolization (TARE) for malignancies of the liver. *J Gastrointest Oncol* 2017; **8** (6): 1072–1078.

Rubenstein MM, Kaubisch A, Kinkhabwala M *et al.* Bridging therapy effectiveness in the treatment of hepatocellular carcinoma prior to otherotopic liver transplant. *J Gastrointest Oncol* 2017; **8** (6): 1051–1055.

Tribuzi S, Naccarato A, Pelagalli L *et al.* Acquired hemophilia A after hepatic yttrium-90 radioembolization: a case report. *A A Case Rep* 2017; **9** (12): 344–345.

Vouche M, Degrez T, Bouazza F *et al.* Sequential tumor-directed and lobar radioembolization before major hepatectomy for hepatocellular carcinoma. *World J Hepatol* 2017; **9** (36): 1372–1377.

Meyer C, Pieper CC, Ahmadzadehfar H *et al.* Yttrium-90 radioembolization of unresectable hepatocellular carcinoma - a single center experience. *Onco Targets Ther* 2017; **10**: 4773–4785.

Klompener EG, Dresen RC, Verslype C *et al.* Safety and efficacy of transarterial radioembolisation in patients with intermediate or advanced stage hepatocellular carcinoma refractory to chemoembolisation. *Cardiovasc Intervent Radiol* 2017; **40** (12): 1882–1890.

Mantry PS, Mehta A, Madani B *et al.* Selective internal radiation therapy using yttrium-90 resin microspheres in patients with unresectable hepatocellular carcinoma: a retrospective study. *J Gastrointest Oncol* 2017; **8** (5): 799–807.

Semaan S, Makkar J, Lewis S *et al.* Imaging of Hepatocellular Carcinoma Response After 90Y Radioembolization. *AJR Am J Roentgenol* 2017; **209** (5): W263–W276.

Song JE, Jung KS, Kim DY *et al.* Transarterial Radioembolization Versus Concurrent Chemoradiation Therapy for Locally Advanced Hepatocellular Carcinoma: A Propensity Score Matching Analysis. *Int J Radiat Oncol Biol Phys* 2017; **99** (2): 396–406.

Floridi C, Pesapane F, Angileri SA *et al.* Yttrium-90 radioembolization treatment for unresectable hepatocellular carcinoma: a single-centre prognostic factors analysis. *Med Oncol* 2017; **34** (10): 174.

Pardo F, Sangro B, Lee RC *et al.* The Post-SIR-Spheres Surgery Study (P4S): Retrospective Analysis of Safety Following Hepatic Resection or Transplantation in Patients Previously Treated with Selective Internal Radiation Therapy with Yttrium-90 Resin Microspheres. *Annals of Surgical Oncology*. 2017; **24**(9): 2465-2473.

Lobo L, Yakoub D, Picado O *et al.* Erratum to: Unresectable hepatocellular carcinoma: Radioembolization versus chemoembolization: A systematic review and meta-analysis. *Cardiovascular Interventional Radiology* 2017 May 25; ePub doi: 10.1007/s00270-017-1693-2.

Samim M, Lam MGEH. Safety and efficacy of Y-90 radioembolization after prior major hepatic resection: Dosimetric consideration. *Cardiovascular and Interventional Radiology* 2017 May 26; ePub doi: 10.1007/s00270-017-1704-3.

Wang DS, Sze DY. Authors' reply: Letter to the editor regarding "Yttrium-90 radioembolization for unresectable combined hepatocellular-cholangiocarcinoma". *Cardiovascular and Interventional Radiology* 2017 May 26; ePub doi: 10.1007/s00270-017-1708-z.

Jia Z. Regarding "Yttrium-90 radioembolization for unresectable combined hepatocellular-cholangiocarcinoma". *Cardiovascular and Interventional Radiology* 2017 May 26; ePub doi: 10.1007/s00270-017-1707-0.

Chan LS, Sze DY, Poultsides GA *et al.* Erratum to: Yttrium-90 radioembolization for unresectable combined hepatocellular-cholangiocarcinoma. *Cardiovascular and Interventional Radiology* 2017 May 26; ePub doi: 10.1007/s00270-017-1701-6.

Zimmermann M, Bruners P. Reply to: Safety and efficacy of Y-90 radioembolization after prior major hepatic resection: Dosimetric consideration. *Cardiovascular and Interventional Radiology* 2017 May 30; ePub doi: 10.1007/s00270-017-1705-2.

Ettore GM, Levi Sandri GB, Vennarecci G. Yttrium-90 radioembolization for hepatocellular carcinoma prior to liver transplantation: Reply. *World Journal of Surgery* 2017 May 5; ePub doi: 10.1007/s00268-017-4044-1.

Chan LS, Sze DY, Poultsides GA *et al.* Yttrium-90 radioembolization for unresectable combined hepatocellular-cholangiocarcinoma. *Cardiovascular Interventional Radiology* 2017 Apr 21; ePub doi: 10.1007/s00270-017-1648-7.

Gui B, Weiner AA, Noshier J *et al.* Assessment of the albumin-bilirubin (ALBI) grade as a prognostic indicator for hepatocellular carcinoma patients treated with radioembolization. *American Journal of Clinical Oncology* 2017 Apr 17; ePub doi: 10.1097/COC.0000000000000384.

Zimmermann M, Schulze-Hagen M, Liebl M *et al.* Safety and efficacy of Y-90 radioembolization after prior major hepatic resection. *Cardiovascular and Interventional Radiology* 2017 Mar 29; ePub doi: 10.1007/s00270-017-1629-x.

Goh BK. Yttrium-90 radioembolization for hepatocellular carcinoma prior to liver transplantation. *World Journal of Surgery* 2017 Mar 27; ePub doi: 10.1007/s00268-017-4011-x.

Rognoni C, Ciani O, Sommariva S, Tarricone R. Real-world data for the evaluation of transarterial radioembolization versus Sorafenib in hepatocellular carcinoma: A cost-effectiveness analysis. *Value in Health* 2017; **20**: 336–344.

Seidensticker M, Powerski M, Seidensticker R *et al.* Cytokines and ⁹⁰Y-radioembolization: Relation to liver function and overall survival. *Cardiovascular Interventional Radiology* 2017 Mar 10; ePub doi: 10.1007/s00270-017-1622-4.

Lau WY. Commentary on the article entitled "hepatocellular carcinoma with macrovascular invasion treated with yttrium-90 radioembolization prior to transplantation". *Hepatobiliary Surgery and Nutrition* 2017; **6**: 49–51.

Kallini JR, Gabr A, Thorlund K *et al.* Comparison of the adverse event profile of TheraSphere® with SIR-Spheres® for the treatment of unresectable hepatocellular carcinoma: A systematic review. *Cardiovascular Interventional Radiology* 2017 Feb 28; ePub doi: 10.1007/s00270-017-1594-4.

- Tohme S, Chidi AP, Sud V, Tsung A. Prognostic nutritional index is associated with survival in patients with unresectable hepatocellular carcinoma treated with radioembolization. *Journal of Vascular and Interventional Radiology* 2017; **28**: 470–472.
- Jreige M, Mitsakis P, Van Der Gucht A *et al.* 18F-FDG PET/CT predicts survival after ⁹⁰Y transarterial radioembolization in unresectable hepatocellular carcinoma. *European Journal of Nuclear Medicine and Molecular Imaging* 2017 Feb 23; ePub doi: 10.1007/s00259-017-3653-0.
- Levi Sandri GB, Ettore GM, Colasanti M *et al.* Hepatocellular carcinoma with macrovascular invasion treated with yttrium-90 radioembolization prior to transplantation. *HepatoBiliary Surgery and Nutrition* 2017. ePub doi: 10.21037/hbsn.2017.01.08.
- Gordic S, Ayache JB, Kennedy P *et al.* Value of tumor stiffness measured with MR elastography for assessment of response of hepatocellular carcinoma to locoregional therapy. *Abdominal Radiology* 2017 Feb 2; ePub doi: 10.1007/s00261-017-1066-y.
- She WH, Cheung TT, Yau TCC *et al.* Survival analysis of transarterial radioembolization with yttrium-90 for hepatocellular carcinoma patients with HBV infection. *Hepatobiliary Surgery and Nutrition* 2014; **3**: 185–193.
- Van Der Gucht A, Jreige M, Denys A *et al.* Resin versus glass microspheres for yttrium-90 transarterial radioembolization: Comparing survival in unresectable hepatocellular carcinoma using pretreatment partition model dosimetry. *Journal of Nuclear Medicine* 2017 Jan 12; ePub doi: 10.2967/jnumed.116.184713.
- Chapman WC, Garcia-Aroz S, Vachharajani N *et al.* Liver transplantation for advanced hepatocellular carcinoma after downstaging without up-front stage restrictions. *Journal of the American College of Surgeons* 2017 Jan 6; ePub doi: 10.1016/j.jamcollsurg.2016.12.020.
- Gnesin S, Canetti L, Adib S *et al.* Partition model based ^{99m}Tc-MAA SPECT/CT predictive dosimetry compared to ⁹⁰Y TOF PET/CT post-treatment dosimetry in radioembolisation of hepatocellular carcinoma: A quantitative agreement comparison. *The Journal of Nuclear Medicine* 2016; **57**: 1672–1678.
- Altenbernd J, Wetter A, Forsting M, Umutlu L. Treatment response after radioembolisation in patients with hepatocellular carcinoma—An evaluation with dual energy computed-tomography. *European Journal of Radiology Open* 2016; **3**: 230–235.
- Ludwig JM, Zhang D, Xing M, Kim HS. Meta-analysis: adjusted indirect comparison of drug-eluting bead transarterial chemoembolization versus ⁹⁰Y-radioembolization for hepatocellular carcinoma. *European Radiology* 2016 Aug 25; ePub doi: 10.1007/s00330-016-4548-3.
- Lobo L, Yakoub D, Picado O *et al.* Unresectable Hepatocellular Carcinoma: Radioembolization Versus Chemoembolization: A Systematic Review and Meta-analysis. *Cardiovascular and Interventional Radiology* 2016 Sep 1; ePub doi: 10.1007/s00270-016-1426-y
- Rognoni C, Ciani O, Sommariva S *et al.* Trans-arterial radioembolization in intermediate-advanced hepatocellular carcinoma: systematic review and meta-analyses. *Oncotarget* 2016 Aug 26; ePub doi: 10.18632/oncotarget.11644.
- Mahvash A, Murthy R, Odisio BC *et al.* Yttrium-90 resin microspheres as an adjunct to sorafenib in patients with unresectable hepatocellular carcinoma. *Journal of Hepatocellular Carcinoma* 2016; **3**: 1–7.
- Ettore GM, Levi Sandri GB, Laurenzi A *et al.* Yttrium-90 radioembolization for hepatocellular carcinoma prior to liver transplantation. *World Journal of Surgery* 2017; **41**: 241–249.
- Liao YY, Zhong JH, Tong TJ *et al.* Is radioembolization or sorafenib the best option for patients with hepatocellular carcinoma and portal vein invasion? *Liver International* 2016 Jul 25; ePub doi: 10.1111/liv.13208. [Comment on: Cho YY *et al.* *PLoS One* 2016; **11**: e0154986. Comment on: de la Torre M *et al.* *Liver International* 2016; **36**: 1206–1212.]
- Oladeru OT, Miccio JA, Yang J *et al.* Conformal external beam radiation or selective internal radiation therapy—A comparison of treatment outcomes for hepatocellular carcinoma. *Journal of Gastrointestinal Oncology* 2016; **7**: 433–440.
- Abi-Jaoudeh N. Commentary: Resin versus Glass Microspheres. *Journal of Vascular and Interventional Radiology* 2016; **27**: 822–823. [Comment on: Biederman DM, *et al.* *Journal of Vascular and Interventional Radiology* 2016; **27**: 822–823.]

- Biederman DM, Titano JJ, Tabori NE *et al.* Outcomes of radioembolization in the treatment of hepatocellular carcinoma with portal vein invasion: Resin versus glass microspheres. *Journal of Vascular and Interventional Radiology* 2016; **27**: 812–821.
- Facciorusso A, Serviddio G, Muscatiello N. Transarterial radioembolization vs chemoembolization for hepatocarcinoma patients: A systematic review and meta-analysis. *World Journal of Hepatology* 2016; **28**: 770–778.
- Woo HY, Kim DY, Heo J *et al.* Effect of yttrium-90 radioembolization on outcomes in Asian patients with early to advanced stage hepatocellular carcinoma. *Hepatology Research* 2016 Jun 7; ePub doi: 10.1111/hepr.12759.
- Kousik V, Promila P, Verma R, Gupta A. Role of yttrium-90 in the management of unresectable hepatocellular carcinoma and hepatic metastases. *Indian Journal of Gastroenterology* 2016; **35**: 179–185.
- Cho YY, Lee M, Kim HC *et al.* Radioembolization is a safe and effective treatment for hepatocellular carcinoma with portal vein thrombosis: A propensity score analysis. *PLoS One* 2016; **11**: e0154986.
- Lorenzin D, Pravisani R, Leo CA *et al.* Complete remission of unresectable hepatocellular carcinoma after combined sorafenib and adjuvant yttrium-90 radioembolization. *Cancer Biotherapy and Radiopharmaceuticals* 2016; **31**: 65–69.
- de la Torre M, Buades-Mateu J, de la Rosa PA *et al.* A comparison of survival in patients with hepatocellular carcinoma and portal vein invasion treated by radioembolization or Sorafenib. *Liver International* 2016; **36**: 1206–1212.
- Soydal C, Arslan MF, Kucuk ON *et al.* Comparison of survival, safety, and efficacy after transarterial chemoembolization and radioembolization of Barcelona Clinic Liver Cancer stage B-C hepatocellular cancer patients. *Nuclear Medicine Communications* 2016; **37**: 646–649.
- Teo JY, Allen JC Jr, Ng DC *et al.* A systematic review of contralateral liver lobe hypertrophy after unilobar selective internal radiation therapy with ⁹⁰Y. *HPB (Oxford)* 2016; **18**: 7–12.
- Edeline J, Crouzet L, Campillo-Gimenez B *et al.* Selective internal radiation therapy compared with sorafenib for hepatocellular carcinoma with portal vein thrombosis. *European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43**: 635–643.
- Diwanji T, Dong T, Moeslein F, Chuong M. Dramatic response of a large, 10 cm hepatocellular carcinoma to monotherapy with yttrium-90 based selective internal radiation therapy. *Cureus* 2015; **7**: e425,
- Gabrielson A, Miller A, Banovac F *et al.* Outcomes and predictors of toxicity after selective internal radiation therapy using Yttrium-90 resin microspheres for unresectable hepatocellular carcinoma. *Frontiers in Oncology* 2015; **5**: 292.
- Lee VH, Leung DK, Luk MY *et al.* Yttrium-90 radioembolization for advanced inoperable hepatocellular carcinoma. *OncoTargets and Therapy* 2015; **8**: 3457–3464.
- Bhangoo MS, Karnani DR, Hein PN *et al.* Radioembolization with yttrium-90 microspheres for patients with unresectable hepatocellular carcinoma. *Journal of Gastrointestinal Oncology* 2015; **6**: 469–478.
- Golfieri R, Mosconi C, Cappelli A *et al.* Efficacy of radioembolization according to tumor morphology and portal vein thrombosis in intermediate-advanced hepatocellular carcinoma. *Future Oncology* 2015; **11**: 3133–3142.
- Kulik L, Salem R. Downstaging: Looking for answers, generating more questions? *Liver Transplantation* 2015; **21**: 1117–1119. [Comment on Parikh *et al.* *Liver Transplantation* 2015; **21**: 1142–1152.]
- Parikh ND, Waljee AK, Singal AG. Downstaging hepatocellular carcinoma: A systematic review and pooled analysis. *Liver Transplantation* 2015; **21**: 1142–1152.
- Bouazza F, Poncelet A, Garcia CA *et al.* Radioembolisation and portal vein embolization before resection of large hepatocellular carcinoma. *World Journal of Gastroenterology* 2015; **21**: 9666–9670.
- Reiner CS, Gordic S, Puipe G *et al.* Histogram analysis of CT perfusion of hepatocellular carcinoma for predicting response to transarterial radioembolization: Value of tumor heterogeneity assessment. *Cardiovascular and Interventional Radiology* 2015; **39**: 400–408.
- Park WD, Li BT, Maher R *et al.* Dramatic response to selective internal radiation therapy for unresectable hepatocellular carcinoma. *Oxford Medical Case Reports* 2015; **2015**: 194–195.

- Soydal C, Keskin O, Kucuk ON *et al.* Prognostic factors for prediction of survival of hepatocellular cancer patients after selective internal radiation therapy. *Annals of Nuclear Medicine* 2015; **29**: 426–430.
- Ozkan ZG, Poyanli A, Ucar A *et al.* Favorable survival time provided with radioembolization in hepatocellular carcinoma patients with and without portal vein thrombosis. *Cancer Biotherapy and Radiopharmaceuticals* 2015; **30**: 132–138.
- Hartenbach M, Weber S, Albert NL *et al.* Evaluating treatment response of radioembolization in intermediate stage hepatocellular carcinoma patients using ¹⁸Fluoroethylcholine-PET/CT. *Journal of Nuclear Medicine* 2015; **56**: 1661–1666.
- Gramenzi A, Pettinato C, Cappelli A *et al.* Reply to: "Sorafenib or ⁹⁰Y loaded resin microsphere radioembolization for locally-advanced hepatocellular carcinoma, what should we trust?" *Liver International* 2015; **35**: 1780–1781.
- Weinmann A, Koch S, Sprinzi M *et al.* Survival analysis of proposed BCLC B subgroups in hepatocellular carcinoma patients. *Liver International* 2015; **35**: 591–600.
- Garin E, Rolland Y, Edeline J. Sorafenib or ⁹⁰Y loaded resin microsphere radioembolization for locally-advanced hepatocellular carcinoma, what should we trust? *Liver International* 2015; **35**: 1779–1780. [Comment on Gramenzi A, Golfieri R, Mosconi C *et al.* *Liver International* 2014; **35**: 1036–1047.]
- Kulik L, Salem R. Yttrium-90 radioembolization for hepatocellular carcinoma in hepatitis B: Commentary on a 103-patient Asian cohort. *Hepatology International* 2014; **8**: 304–307. [Comment on Khor AYK, Toh Y, Allen JC *et al.* *Hepatology International* 2014; **8**: 395–404]
- Saxena A, Meteling B, Kapoor J *et al.* Yttrium-90 radioembolization is a safe and effective treatment for unresectable hepatocellular carcinoma: A single centre experience of 45 consecutive patients. *International Journal of Surgery* 2014; **12**: 1403–1408.
- Rostambeigi N, Dekarske AS, Austin EE *et al.* Cost effectiveness of radioembolization compared with conventional transarterial chemoembolization for treatment of hepatocellular carcinoma. *Journal of Vascular and Interventional Radiology* 2014; **25**: 1075–1084.
- Sabet A, Ahmadzadehfar H, Bruhman J *et al.* Survival in patients with hepatocellular carcinoma treated with ⁹⁰Y-microsphere radioembolization. Prediction by ¹⁸F-FDG PET. *Nuklearmedizin* 2014; **53**: 36–45.
- Teo JY, Goh BK, Cheah FK *et al.* Underlying liver disease influences volumetric changes in the spared hemiliver after selective internal radiation therapy with ⁹⁰Y in patients with hepatocellular carcinoma. *Journal of Digestive Diseases* 2014; **15**: 444–450.
- Khor AYK, Toh Y, Allen JC *et al.* Survival and pattern of tumor progression with yttrium-90 microsphere radioembolization in predominantly hepatitis B Asian patients with hepatocellular carcinoma. *Hepatology International* 2014; **8**: 395–404.
- Ettorre GM, Laurenzi A, Vennarecci G. Downstaging hepatocellular carcinoma with Yttrium-90 radioembolization: Resection or transplantation? *European Journal of Surgical Oncology* 2014; **40**: 789–790.
- Gramenzi A, Golfieri R, Mosconi C *et al.* BLOG (Bologna Liver Oncology Group). Yttrium-90 radioembolization versus sorafenib for intermediate-locally advanced hepatocellular carcinoma: A cohort study with propensity score analysis. *Liver International* 2014; **35**: 1036–1047.
- Bourgeois AC, Chang TT, Bradley YC *et al.* Intraprocedural yttrium-90 positron emission tomography/CT for treatment optimization of yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2014; **25**: 271–275.
- Ahmadzadehfar H, Pieper CC, Ezziddin S *et al.* Radioembolization with ⁹⁰Y resin microspheres for HCC patients with extensive tumor thrombosis into the extrahepatic vessels. *Clinical Nuclear Medicine* 2014; **39**: 305–307.
- Weinmann A, Koch S, Niederle IM *et al.* Trends in epidemiology, treatment, and survival of hepatocellular carcinoma patients between 1998 and 2009: An analysis of 1066 cases of a German HCC registry. *Journal of Clinical Gastroenterology* 2014; **48**: 279–289.
- Rana N, Ju AW, Bazylewicz M *et al.* Yttrium-90 radioembolization in patients with hepatocellular carcinoma who have previously received sorafenib. *Frontiers in Oncology* 2013; **3**: 323.

- Kim EH, Kim BK, Kim do Y, Kim SU. Optimal timing of combining sorafenib with locoregional treatments in patients with advanced hepatocellular carcinoma. *European Journal of Gastroenterology & Hepatology* 2013; **25**: 514–515.
- Iñarrairaegui M, Pardo F, Sangro B. Reply to: Downstaging to liver resection by radioembolization: A difficult to reach strategy? *European Journal of Surgical Oncology* 2013; **39**: 920–921. [Reply to Tabone *et al.* *European Journal of Surgical Oncology* 2013; **39**: 918–919.]
- Golfieri R, Bilbao JI, Carpanese L *et al* on behalf of the European Network on Radioembolization with Yttrium-90 Microspheres (ENRY) study collaborators. Comparison of the survival and tolerability of radioembolization in elderly versus younger patients with unresectable hepatocellular carcinoma. *Journal of Hepatology* 2013; **59**: 753–761.
- Edeline J, Lenoir L, Boudjema K *et al.* Volumetric changes after ⁹⁰Y radioembolization for hepatocellular carcinoma in cirrhosis: An option to portal vein embolization in a preoperative setting? *Annals of Surgical Oncology* 2013; **20**: 2518–2525.
- Hawkins CM, Kukreja K, Geller JI *et al.* Radioembolisation for treatment of pediatric hepatocellular carcinoma. *Pediatric Radiology* 2013; **43**: 876–881.
- Tabone M, Calvo A, Viganò L, Ferrero A. Downstaging to liver resection by radioembolization: A difficult to reach strategy? *European Journal of Surgical Oncology* 2013; **39**: 918–919. [Comment on Iñarrairaegui *et al.* *European Journal of Surgical Oncology* 2012; **38**: 594–601.]
- Gaba RC, Vanmiddlesworth KA. Chemoembolic hepatopulmonary shunt reduction to allow safe yttrium-90 radioembolization lobectomy of hepatocellular carcinoma. *Cardiovascular and Interventional Radiology* 2012; **35**: 1505–1511.
- Xie F, Zang J, Guo X *et al.* Comparison of transcatheter arterial chemoembolization and microsphere embolization for treatment of unresectable hepatocellular carcinoma: a meta-analysis. *Journal of Cancer Research and Clinical Oncology* 2012; **138**: 455–462.
- Burgmans MC, Irani FG, Chan WY *et al.* Radioembolization after portal vein embolization in a patient with multifocal hepatocellular carcinoma. *Cardiovascular and Interventional Radiology* 2012; **35**: 1519–1523.
- Iñarrairaegui M, Pardo F, Bilbao JI *et al.* Response to radioembolization with yttrium-90 resin microspheres may allow surgical treatment with curative intent and prolonged survival in previously unresectable hepatocellular carcinoma. *European Journal of Surgical Oncology* 2012; **38**: 594–601.
- Ray CE Jr, Battaglia C, Libby AM *et al.* Interventional radiologic treatment of hepatocellular carcinoma - a cost analysis from the payer perspective. *Journal of Vascular and Interventional Radiology* 2012; **23**: 306–314.
- Sangro B. Reply to Dr. Wigg. *Hepatology* 2012; **55**: 981–982. [Reply to: Wigg A. Yttrium 90 therapy for HCC; is it any better than conventional external beam radiotherapy? *Hepatology* 2012; **55**: 981.]
- Wigg A. Yttrium 90 therapy for HCC; is it any better than conventional external beam radiotherapy? *Hepatology* 2012; **55**: 981.
- Lance C, McLennan G, Obuchowski N *et al.* Comparative analysis of the safety and efficacy of transcatheter arterial chemoembolization and yttrium-90 radioembolization in patients with unresectable hepatocellular carcinoma. *Journal of Vascular and Interventional Radiology* 2011; **22**: 1697–1705.
- Ettore GM, Vennarecci G, Santoro R *et al.* Experiences in hepatic surgery and transplantation after radioembolization. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 109.
- Sangro B, Carpanese L, Cianni R *et al* on behalf of European Network on Radioembolization with yttrium-90 resin microspheres (ENRY). Survival after ⁹⁰Y resin microsphere radioembolization of hepatocellular carcinoma across BCLC stages: A European evaluation. *Hepatology* 2011; **54**: 868–878.
- D'Avola D, Iñarrairaegui M, Pardo F *et al.* Prognosis of hepatocellular carcinoma in relation to treatment across BCLC stages. *Annals of Surgical Oncology* 2011; **18**: 1964–1971.
- Ettore GM, Santoro R, Claudio P *et al.* Short-term follow-up of radioembolization with yttrium-90 microspheres before liver transplantation: new perspectives in advanced hepatocellular carcinoma. *Transplantation* 2010; **90**: 930–931.
- Strigari L, Sciuto R, Rea S *et al.* Efficacy and toxicity related to treatment of hepatocellular carcinoma with ⁹⁰Y-SIR spheres: radiobiologic considerations. *Journal of Nuclear Medicine* 2010; **51**: 1377–1385.

- Tsai AL, Burke CT, Kennedy AS *et al.* Use of yttrium-90 microspheres in patients with advanced hepatocellular carcinoma and portal vein thrombosis. *Journal of Vascular and Interventional Radiology* 2010; **21**:1377–1384.
- Iñarrairaegui M, Thurston KG, Bilbao JI *et al.* Radioembolization with use of yttrium-90 resin microspheres in patients with hepatocellular carcinoma and portal vein thrombosis. *Journal of Vascular and Interventional Radiology* 2010; **21**: 1205–1212.
- Iñarrairaegui M, Martínez-Cuesta A, Rodríguez M *et al.* Analysis of prognostic factors after yttrium-90 radioembolization of advanced hepatocellular carcinoma. *International Journal of Radiation Oncology, Biology and Physics* 2010; **77**: 1441–1448.
- Kooby DA, Egnatashvili V, Srinivasan S *et al.* Comparison of yttrium-90 radioembolization and transcatheter arterial chemoembolization for the treatment of unresectable hepatocellular carcinoma. *Journal of Vascular and Interventional Radiology* 2010; **21**: 224–230.
- D'Avola D, Iñarrairaegui M, Bilbao JI *et al.* A retrospective comparative analysis of the effect of Y90-radioembolization on the survival of patients with unresectable hepatocellular carcinoma. *Hepato-gastroenterology* 2009; **56**: 1683–1688.
- Barakat O, Skolkin MD, Toombs BD *et al.* Major liver resection for hepatocellular carcinoma in the morbidly obese: a proposed strategy to improve outcome. *World Journal of Surgical Oncology* 2008; **6**: 100.
- Rivera L, Giap H, Miller W *et al.* Hepatic intra-arterial infusion of yttrium-90 microspheres in the treatment of recurrent hepatocellular carcinoma after liver transplantation: a case report. *World Journal of Gastroenterology* 2006; **12**: 5729–5732.
- Chui A, Rao A, Island E *et al.* Multimodality tumor control and living donor transplantation for unresectable hepatocellular carcinoma. *Transplantation Proceedings* 2004; **36**: 2287–2288.
- Lau W, Ho S, Yu S *et al.* Salvage surgery following downstaging of unresectable hepatocellular carcinoma. *Annals of Surgery* 2004; **240**: 299–305.
- Szeto C, Wong T, Leung C *et al.* Selective internal radiation therapy by yttrium-90 microspheres for hepatocellular carcinoma after renal transplantation. *Clinical Transplantation* 2001; **15**: 284–288.
- Lau W, Ho S, Leung T *et al.* What determines survival duration in hepatocellular carcinoma treated with intraarterial yttrium-90 microspheres? *Hepato-Gastroenterology* 2001; **48**: 338–340.

Abstracts on Retrospective Studies in Hepatocellular Carcinoma

- Palmer D, Ross P, Shah T *et al.* Cost effectiveness of selective internal radiation therapy (SIRT) with Y-90 resin microspheres versus sorafenib in Barcelona Clinic Liver Cancer (BCLC) stage C hepatocellular carcinoma patients in the UK. *42nd European Society for Medical Oncology Congress* 2017; Abs. 703P.
- Paladini A, Pizzi G, Vallati G *et al.* Retrospective analysis of a cohort of patients affected by unresectable hepatocellular carcinoma treated with SIRT and liver transplant. *9th Annual Symposium on Clinical Interventional Oncology* 2017; e26.
- Walton H, Chou F, Maher B *et al.* Resin vs Glass Radioembolization: A comparison of survival in patients treated for hepatocellular carcinoma with portal vein thrombosis. *Society of Interventional Radiology (SIR)* Abs.1466.
- Walton H, Liu D, Chou F *et al.* Radiation segmentectomy vs. conventional Y- 90 selective internal radiation therapy: A comparison of survival in patients treated for hepatocellular carcinoma with portal vein thrombosis. *Society of Interventional Radiology (SIR)* Abs.1456.
- Lin M, Saboury B. WE-AB-BRA-05: PET-guided delivery quality evaluation of yttrium-90 microsphere radioembolization for hepatocellular carcinoma patients: The optimal sequence of radioembolization and chemoembolization treatments. *Medical Physics* 2016; **43**: 3792.
- Rubinstein MMZ, Kaubisch A, Kinkhabwala M *et al.* Bridging therapy effectiveness in the treatment of hepatocellular carcinoma prior to orthotopic liver transplantation. *Journal of Clinical Oncology* 2016; **34** (Suppl. 4S) Abs: 401.
- Chung J, Lim H, Buczkowski A *et al.* 11 year longitudinal analysis of survival trends of solitary unresectable hepatocellular carcinoma. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S170 Abs.378.
- Swinburne N, Besa Correa C, Tabori N *et al.* Single center early experience with locoregional treatment for HCC following sofosbuvir-based HCV therapy: Safety and efficacy. *Society of*

- Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S173-174 Abs. 386.
- Lam A, Rapp G, Bui K *et al.* Pre and post-procedural evaluation of imaging biomarkers after radioembolization for hepatocellular carcinoma as an indicator of progression. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S153 Abs. 338.
- Alian A, Pillai A, Kalva S *et al.* Yttrium-90 radioembolization versus doxorubicin-eluting beads chemoembolization in patients with infiltrative hepatocellular carcinoma: Single center comparison of survival and toxicity. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S84 Abs. 179
- Kim K, Burke C, Isaacson A *et al.* Aborted yttrium 90 radioembolization in patients with hepatocellular carcinoma after mapping hepatic arteriography and lung shunt study. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S68 Abs. 143.
- Biederman DM, Tabori NE, Titano JJ *et al.* Outcomes of yttrium-90 therapy in the treatment of hepatocellular carcinoma (HCC) with portal vein thrombosis (PVT): resin-based vs. glass-based microspheres. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26** (Suppl): S109 Abs. 237.
- Masrani A, Turba U, Tasse J *et al.* Aggressive shunt reduction technique prior to radioembolization. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2016; **27**: 785.e32 Abs
- Nani R, De Giorgio M, Virota G *et al.* A single-centre cost analysis in treatment of advanced hepatocellular carcinoma: TARE versus sorafenib. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2015; Abs. P-237.
- Luca MG, De Giorgio M, Magin G *et al.* Treatment of advanced hepatocellular carcinoma (HCC): A single centre cost analysis of yttrium 90 trans-arterial radioembolization (TARE) versus sorafenib. *9th International Liver Cancer Association (ILCA) meeting* September 2015; Abs. P-316
- Ludwig JM, Xing M, Kim K. Comparative effectiveness analysis of drug-eluting bead transarterial chemoembolization (DEB-TACE) versus ⁹⁰Y-radioembolization for hepatocellular carcinoma. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 66.
- Gao F, Xue J, V. Khanna V *et al.* The clinical value of radioembolization for portal vein thrombosis in hepatocellular carcinoma: Effectiveness and safety in 12 patients. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 63.
- Schenning R, Harrison J, Jahangiri Noudeh Y *et al.* Efficacy of Y-90 radioembolization for BCLC stage C hepatocellular carcinoma. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 61.
- Jung E, Kim Y, Cho S. Prognostic effect of arterioportal shunt in radioembolization using yttrium-90 resin microspheres for hepatocellular carcinoma with portal vein thrombosis - a single center study. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 59.
- Sangro B, Schön M, Lee RC *et al and the P4S Investigators.* Post-SIR-Spheres Surgery Study (P4S): Liver Surgery can be Safely Performed in Patients with Hepatocellular Carcinoma (HCC) Previously Treated with Selective Internal Radiation Therapy (SIRT) using Y-90 Resin Microspheres. *International Liver cancer Association Annual Meeting* 2015; Abs P-304.
- Titano JJ, Biederman DM, Kamath A *et al.* Outcomes in Yttrium-90 radioembolization in the treatment of hepatocellular carcinoma in patients with an alpha-fetoprotein > 400 ng/ml. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26** (Suppl): S28 Abs. 51.
- Schaffer K, Noel MS, Hezel AF *et al.* A tertiary cancer center experience with yttrium-90 radioembolization in hepatocellular carcinoma. *ASCO Gastrointestinal Cancers Symposium, Journal of Clinical Oncology* 2015; **33** (Suppl 3): Abs. 443.
- Kappadath S, Mikell J, Baladandayuthapani V *et al.* Hepatocellular carcinoma tumor response using voxel-based dosimetry following ⁹⁰Y-microsphere therapy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP361.
- Kim Y, Jung E, Kim G *et al.* Radioembolization for hepatocellular carcinoma using yttrium-90 resin microspheres: general experiences in Korea. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2014; Abs.3104.2.

Kim Y, Kim G, Chun H *et al.* Radioembolization for portal vein tumor thrombosis using yttrium-90 resin microspheres: general experiences in Korea. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2014; Abs.3104.5.

Terulla A, Bergesio F, Roberto E *et al.* Treatment planning experience in radioembolization of hepatocarcinoma with ⁹⁰Y microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW044.

Kabnurkar R, Zade A, Kulkarni S *et al.* Role of FDG PET-CT in prognostication of hepatocellular carcinoma patients undergoing transarterial radioembolisation. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP428.

Sciuto R, Rea S, Annovazzi A *et al.* Evolving role of ⁹⁰Y radioembolization of hepatocellular carcinoma: moving from palliation to cure. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP599.

Siebert DR, Kowalik KJ, D'Souza D *et al.* Liver failure following yttrium-90 treatment in complex hepatocellular cancer patients: Experience at a single center. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e23 Abs.

Abdelmaksoud M, Abdelmaksoud A, Mostafa M *et al.* Y-90 radioembolization of hepatocellular carcinoma with portal vein tumor thrombus associated with hepatitis C genotype 4. *Society of Interventional Radiology (SIR) 39th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2014; **25** (Suppl): S107 Abs. 229.

Lee V, Leung D, Luk M *et al.* Treatment outcomes of patients with extremely advanced inoperable hepatocellular carcinoma (HCC) after yttrium-90 radioembolization. *World Congress on Gastrointestinal Cancer, Annals of Oncology* 2014; **25** (Suppl 2): pii88 Abs. P-0093.

Ma M.X, Adams L, Garas G *et al.* Selective internal radiation therapy for hepatocellular carcinoma: Combination with sorafenib is associated with improved survival outcomes. *European Association for the Study of the Liver (EASL) Congress, Journal of Hepatology* 2014; **60** (Suppl): S211 Abs. P430.

Chow P, Teo JY, Allen JC *et al.* Treatment of right-sided hepatocellular carcinoma with uni-lobar Y-90 radioembolisation and induction of hypertrophy in the contralateral left lobe. *ASCO Annual Meeting 2013, Journal of Clinical Oncology* **31** (Suppl): Abs. e15102.

Gadani S, Mahvash A, Avritscher R *et al.* Yttrium-90 resin microspheres as an adjunct to sorafenib in patients with unresectable HCC: A retrospective study for evaluation of survival benefit and adverse events. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S35 Abs. 62.

Lam MG, Seinstral BA, van den Bosch M *et al.* Comparison between resin and glass microspheres for yttrium-90 radioembolization treatment of hepatocellular carcinoma. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S149 Abs. 345.

Rajan P, Dang PR, Fischman AM *et al.* Role of yttrium-90 radioembolization after failure of chemoembolization with drug eluting beads for hepatocellular carcinoma: Single center evaluation of safety and efficacy. *15th Annual Symposium on Clinical Interventional Oncology (CIO)* 2013; Abs 10.

Sciuto R, Annovazzi A, Rea S *et al.* ¹⁸F-FDG PET/CT role in predicting clinical outcome after ⁹⁰Y-labeled resin microspheres treatment (⁹⁰Y-RE) in advanced hepatocellular carcinoma (HCC). *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP471.

De Palma D, Boni L, Carrafiello G *et al.* Promising preliminary data about treatment of multifocal hepatocellular carcinoma with ⁹⁰Y microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0130.

Lin K, Lee R, Liu C *et al.* The value of whole-body FDG-PET/CT in detection of extrahepatic metastases in hepatocellular carcinoma patients treated with Yttrium-90 radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0508.

- Vennarecci G, Santoro R, Lepiane P *et al.* Use of hepatic intra-arterial infusion of yttrium-90 microsphere as downstaging and bridge to liver transplantation in patients with hepatocellular carcinoma. *International Hepato-Pancreato-Biliary Association Congress 2012*; Abs. FOS28.16.
- Ettorre G, Sangro B, Cianni R *et al.* European multicentre evaluation of the impact of prior procedures on survival and safety following radioembolization in patients with unresectable hepatocellular carcinoma. *International Hepato-Pancreato-Biliary Association Congress 2012*; Abs. H471.
- Fiore F, Bilbao JI, Carpanese L *et al.* The efficacy, safety, and tolerability of radioembolization in unresectable hepatocellular carcinoma with whole-liver, lobar, or segmental treatment. *World Conference on Interventional Oncology (WCIO) meeting 2012*; Poster 18.
- Kucuk O, Soydal C, Araz M *et al.* Evaluation of the response to SIRT in patients with HCC according to pretreatment MAA uptake. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine 2012*; **53** (Suppl 1): Abs. 1151.
- Rodriguez M, Maini C, Salvatori R *et al.* Impact of target area (whole-liver, lobar or segmental) in unresectable hepatocellular carcinoma (HCC) patients treated by radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2011*; **38** (Suppl 2): Abs. OP021.
- Sciuto R, Carpanese L, Ettorre GM *et al.* Efficacy and safety of ⁹⁰Y-labelled resin microspheres treatment (⁹⁰Y-RE) in hepatocellular carcinoma (HCC): Results of a phase II study. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2011*; **38** (Suppl 2): Abs. OP130.
- Sangro B, Carpanese L, Salvatori R *et al.* Safety and efficacy of radioembolization amongst patients who met the inclusion criteria for the Sorafenib Hepatocellular Carcinoma Assessment Randomized Protocol (SHARP) trial. *5th International Liver Cancer Association (ILCA) meeting September 2011*; Abs. P-141.
- Sangro B, Maini CL, Notarianni E *et al.* Radioembolization for unresectable hepatocellular carcinoma (HCC) in the elderly. *5th International Liver Cancer Association (ILCA) meeting September 2011*; Abs. P-142.
- Sangro B, Ettorre G, Cianni R *et al.* A European multicentre evaluation of survival, safety and liver function after radioembolisation with ⁹⁰Y-resin microspheres (ENRY) for unresectable hepatocellular carcinoma. *13th World Congress on Gastrointestinal Cancer, Annals of Oncology 2011*; **22** (Suppl 5): v17 Abs. O-0023.
- Ettorre GM, Sangro B, Cianni R *et al.* Impact of prior procedures on overall survival following radioembolization in patients with unresectable hepatocellular carcinoma. *ASCO Annual Meeting, Journal of Clinical Oncology 2011*; **29** (Suppl): Abs. 4099.
- Sangro B, Ettorre G, Cianni R *et al.* Survival and tolerability following ⁹⁰Y-resin microsphere radioembolisation in patients with unresectable BCLC stage C hepatocellular carcinoma (HCC). *European Association for the Study of the Liver (EASL) Congress, Journal of Hepatology 2011*; **54** (Suppl 1):S36 Abs. 650.
- Higgins L, Rose S, Lorenzetti D *et al.* A systematic review and meta-analysis of transarterial radioembolization (TARE) for hepatocellular carcinoma (HCC). *European Association for the Study of the Liver (EASL) Congress, Journal of Hepatology 2011*; **54** (Suppl 1):S253–254 Abs. 625.
- Mahvash A, Murthy R, Avritscher R *et al.* Yttrium-90 resin hepatic arterial radioembolotherapy as a therapeutic adjunct to sorafenib for advanced non-transplantable, non-resectable hepatocellular cancer. *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2011*; **22** (Suppl): S90–91 Abs. 210.
- Presidente A, Lombardi G, D'angelo R *et al.* Radioembolization with Y90 microspheres in HCC associated to portal vein thrombosis: personal experience. *European Congress of Radiology 2011*; Abs. C-1209.
- Migliorese L, Vennarecci G, Santoro R *et al.* Hepatic intra-arterial infusion of yttrium-90 microspheres for hepatocellular carcinoma before liver transplantation. *7th Meeting of the HCC Eastern & Western Experiences (HCC2011) 2011*; Abs. 42.
- Vennarecci G, Sciuto R, Carpanese L *et al.* Hepatocellular carcinoma with portal vein thrombosis down-staged by hepatic intra-arterial infusion of yttrium-90 microspheres before liver transplantation: a case report. *7th Meeting of the HCC Eastern & Western Experiences (HCC2011) 2011*; Abs. 56.

- Vennarecci G, Sciuto R, Carpanese L *et al.* Use of hepatic intra-arterial infusion of yttrium-90 microspheres as down-staging and bridge to liver transplantation in patients with hepatocellular carcinoma. *7th Meeting of the HCC Eastern & Western Experiences (HCC2011)* 2011; Abs. 57.
- Ettore G, Sangro B, Cianni R *et al.* Applicability of the Barcelona clinic liver cancer staging system for patients with unresectable hepatocellular carcinoma treated by radioembolisation. *15th Congress of the European Society of Surgical Oncology (ESSO), European Journal of Surgical Oncology* 2010; **36**: 899 Abs. 444.
- D'Avola D, Iñarrairaegui M, Alegre F *et al.* Baseline alpha-fetoprotein (AFP) as a prognostic marker of survival in unresectable hepatocellular carcinoma (HCC). *4th International Liver Cancer Association (ILCA) meeting* 2010; Abs. P-147.
- Farris AB, Dhanasekaran R, Dursun N *et al.* Tumorigenesis and angiogenesis factors in hepatocellular carcinoma after locoregional therapy. *Society of Interventional Radiology (SIR) 35th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2010; **21** (Suppl): S14 Abs. 77.
- Carpanese L, Pizzi G, Vallati GE *et al.* Radioembolization of advanced hepatocellular carcinoma using ⁹⁰Y-resin microspheres: mid-term results in a single institute experience. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2009; Abs. 1905.4.
- Khanna V, Dhanasekaran R, Kooby DA *et al.* Comparison of survival benefits of conventional TACE, Precision TACE (drug eluting beads with doxorubicin) and Yttrium-90 radioembolization (SIR-Spheres) for unresectable HCC. *Society of Interventional Radiology (SIR) 34th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2009; **26** (2S): S84 Abs 217.
- Carpanese L, Pizzi G, Vallati GE *et al.* Role of the hepatic intra-arterial injection of Yttrium-90 microspheres in unresectable hepatocellular carcinoma: preliminary experience and clinical results. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2008; Abs. 3009.2.
- Iñarrairaegui M, Bilbao JI, Martinez-Cuesta A *et al.* Liver radioembolization for the treatment of hepatocellular carcinoma: feasibility and antitumor effect. *European Association for the Study of the Liver (EASL) Congress* 2008; Abs.
- Cabrera R, George T, Soldevila-Pico C *et al.* Safety of sorafenib alone or in combination with locoregional therapy in patients with advanced hepatocellular carcinoma (HCC) and decompensated cirrhosis. *ASCO Gastrointestinal Cancers Symposium* 2008; Abstract 147.

Neuroendocrine Tumour Liver Metastases

Prospective Clinical Studies in Neuroendocrine Tumours Liver Metastases

Kim HS, Shaib WL, Zhang C *et al.* Phase 1b study of pasireotide, everolimus, and selective internal radioembolization therapy for unresectable neuroendocrine tumors with hepatic metastases. *Cancer* 2018; **124** (9): 1992–2000.

Ludwig JM, McIntosh Ambinder E, Ghodadra A *et al.* Lung shunt fraction prior to yttrium-90 radioembolization predicts survival in patients with neuroendocrine liver metastases: Single-center prospective analysis. *Cardiovascular and Interventional Radiology* 2016; **39**: 1007–1014.

Filippi L, Scopinaro F, Pelle G *et al.* Molecular response assessed by ⁶⁸Ga-DOTANOC and survival after ⁹⁰Y microsphere therapy in patients with liver metastases from neuroendocrine tumours. *European Journal of Nuclear and Medical Molecular Imaging* 2015; **43**: 432–440.

Saxena A, Chua TC, Bester L *et al.* Factors predicting response and survival after yttrium-90 radioembolization of unresectable neuroendocrine tumor liver metastases: a critical appraisal of 48 cases. *Annals of Surgery* 2010; **251**: 910–916.

Kalinowski M, Dressler M, König A *et al.* Selective internal radiotherapy with yttrium-90 microspheres for hepatic metastatic neuroendocrine tumors: A prospective single center study. *Digestion* 2009; **79**: 137–142.

King J, Quinn R, Glenn D *et al.* Radioembolization with selective internal radiation microspheres for neuroendocrine liver metastases. *Cancer* 2008; **113**: 921–929.

Abstracts on Prospective Clinical Studies in Neuroendocrine Tumour Liver Metastases

Soulen MC, Deitrick G, van Houten D *et al.* Feasibility of combining capecitabine and temozolomide with yttrium-90 radioembolization (CapTemY90) for intermediate-grade metastatic neuroendocrine tumors. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2014; Abs. 3104.1.

McElmurray JH, Bream PR, Grzeszczak E *et al.* Phase II clinical trial of Yttrium-90 resin microspheres for the treatment of metastatic neuroendocrine tumor. *World Conference on Interventional Oncology (WCIO) meeting* 2012; Abs. 47.

Retrospective Studies in Neuroendocrine Tumour Liver Metastases

Tomozawa Y, Jahangiri Y, Pathak P *et al.* Long-term toxicity after transarterial radioembolization with Yttrium-90 using resin microspheres for neuroendocrine tumor liver metastases. *J Vasc Interv Radiol*. 2018 **29** (6): 858–865.

Jia Z, Wang W. Yttrium-90 radioembolization for unresectable metastatic neuroendocrine liver tumor: A systematic review. *Eur J Radiol* 2018; **100**: 23–29.

Orwat KP, Beckham TH, Cooper SL *et al.* Pretreatment albumin may aid in patient selection for intrahepatic Y-90 microsphere transarterial radioembolization (TARE) for malignancies of the liver. *J Gastrointest Oncol* 2017; **8** (6): 1072–1078.

Chansanti O, Jahangiri Y, Matsui Y *et al.* Tumor dose response in yttrium-90 resin microsphere embolization for neuroendocrine liver metastases: a tumor-specific analysis with dose estimation using SPECT-CT. *J Vasc Interv Radiol* 2017; **28** (11): 1528–1535.

Jia Z, Paz-Fumagalli R, Frey G *et al.* Single-institution experience of radioembolization with yttrium-90 microspheres for unresectable metastatic neuroendocrine liver tumors. *Journal of Gastroenterology and Hepatology* 2017 Jan 29; ePub doi: 10.1111/jgh.13752.

Cramer B, Xing M, Kim HS. Prospective longitudinal quality of life assessment in patients with neuroendocrine tumor liver metastases treated with ⁹⁰Y radioembolization. *Clinical Nuclear Medicine* 2016 Oct 5; ePub doi: 10.1097/RLU.0000000000001383.

Chen JX, Rose S, White SB *et al.* Embolotherapy for neuroendocrine tumor liver metastases: Prognostic factors for hepatic progression-free survival and overall survival. *CardioVascular and Interventional Radiology* 2016 Oct 14; ePub doi: 10.1007/s00270-016-1478-z.

Singla S, LeVeae CM, Pokuri VK *et al.* Ki67 score as a potential predictor in the selection of liver directed therapies for metastatic neuroendocrine tumors: A single institutional experience. *Journal of Gastrointestinal Oncology* 2016; **7**: 441–448.

- Caglar E, Doğusoy G, Kabasakal L, Dobrucali A. Long-term palliative effect of stenting in gastric outlet obstruction due to transarterial chemoembolization with yttrium-90 in a patient with metastatic neuroendocrine tumor. *Clinical Endoscopy* 2016 Jun 29; ePub doi: 10.5946/ce.2015.149.
- Loree JM, Hiruki T, Kennecke HF. Case report of cirrhosis following yttrium-90 radioembolization for pancreatic neuroendocrine liver metastases. *Case Reports in Oncology* 2016; **9**: 76–82.
- Barbier CE, Garske-Román U, Sandström M *et al.* Selective internal radiation therapy in patients with progressive neuroendocrine liver metastases. *European Journal of Nuclear Medicine and Molecular Imaging* 2015; **43**: 1425–1431.
- Peker A, Çiçek O, Soydal C *et al.* Radioembolization with yttrium-90 resin microspheres for neuroendocrine tumor liver metastases. *Diagnostic and Interventional Radiology* 2015; **21**: 54–59.
- Ceelen F, Theisen D, de Albéniz XG *et al.* Towards new response criteria in neuroendocrine tumors: Which changes in MRI parameters are associated with longer progression-free survival after radioembolization of liver metastases? *Journal of Magnetic Resonance Imaging* 2015; **41**: 361–368.
- Filippi L, Ciorra A, Sardella B *et al.* Sequential use of ⁹⁰Y microspheres radioembolization and ¹⁷⁷Lu-dotatate in pluri-metastatic neuroendocrine tumors: A case report. *Nuclear medicine and molecular imaging* 2014; **48**: 321–325.
- Scharf M, Mueller D, Koenig U *et al.* Management of a metastasized high grade insulinoma (G3) with refractory hypoglycemia: Case report and review of the literature. *Pancreatology* 2014; **14**: 542–545.
- Devic Z, Rosenberg J, Braat AJ *et al.* The efficacy of hepatic ⁹⁰Y resin radioembolization for metastatic neuroendocrine tumors: A meta-analysis. *Journal of Nuclear Medicine* 2014; **55**: 1404–1410.
- Kukuk GM, Mürtz P, Träber F *et al.* Diffusion-weighted imaging with acquisition of three b-values for response evaluation of neuroendocrine liver metastases undergoing selective internal radiotherapy. *European Radiology* 2014; **24**: 267–276.
- Kapur S, Mahal P, Miles L *et al.* Diagnosing a gastric submucosal tumor using jumbo biopsy "unroofing" technique: A case report and review of the literature. *Case Reports in Oncological Medicines* 2013; **2013**: 414518.
- Sommer WH, Ceelen F, García-Albéniz X *et al.* Defining predictors for long progression-free survival after radioembolisation of hepatic metastases of neuroendocrine origin. *European Radiology* 2013; **23**: 3094–3103.
- Neperud J, Mahvash A, Garg N *et al.* Can imaging patterns of neuroendocrine hepatic metastases predict response yttrium-90 radioembolotherapy? *World Journal of Radiology* 2013; **5**: 241–247.
- Ozao-Choy J, Friedman ML, Kim AS *et al.* Radioembolization for treatment of liver metastases from neuroendocrine tumors: Correlation with imaging and biomarkers. *Pancreas* 2013; **42**: 358–360.
- Ezziddin S, Meyer C, Kohancova S *et al.* ⁹⁰Y radioembolization after radiation exposure from peptide receptor radionuclide therapy. *Journal of Nuclear Medicine* 2012; **53**: 1663–1669.
- Saxena A, Chua TC, Zhao J *et al.* Liver-directed therapy for neuroendocrine neoplasm hepatic metastasis prolongs survival following progression after initial surgery. *Journal of Surgical Oncology* 2012; **105**: 342–350.
- Paprottka PM, Hoffmann RT, Haug A *et al.* Radioembolization of symptomatic, unresectable neuroendocrine hepatic metastases using yttrium-90 microspheres. *Cardiovascular and Interventional Radiology* 2012; **35**: 334–342.
- Lacin S, Oz I, Ozkan E *et al.* Intra-arterial treatment with ⁹⁰Yttrium microspheres in treatment-refractory and unresectable liver metastases of neuroendocrine tumors and the use of ¹¹¹In-octreotide scintigraphy in the evaluation of treatment response. *Cancer Biotherapy & Radiopharmaceuticals* 2011; **26**: 631–637.
- Rajekar H, Bogamma K, Stubbs RS. Selective internal radiation therapy (SIRT) for gastrointestinal neuroendocrine tumour (NET) liver metastases: A new and effective modality for treatment. *International Journal of Hepatology* 2011; **2011**: 404916.
- Arslan N, Emi M, Alagöz E *et al.* Selective intraarterial radionuclide therapy with Yttrium-90 (Y-90) microspheres for hepatic neuroendocrine metastases: initial experience at a single center. *Vojnosanitetski Pregled* 2011; **68**: 341–348.
- Whitney R, Válek V, Fages JF *et al.* Transarterial chemoembolization and selective internal radiation for the treatment of patients with metastatic neuroendocrine tumors: a comparison of efficacy and cost. *The Oncologist* 2011; **16**: 594–601.

Chandra P, Yarandi SS, Khazai N *et al.* Management of intractable hypoglycemia with yttrium-90 radioembolization in a patient with malignant insulinoma, *American Journal of the Medical Sciences* 2010; **340**: 414–417.

Cao CQ, Yan TD, Bester L *et al.* Radioembolization with yttrium microspheres for neuroendocrine tumour liver metastases. *British Journal of Surgery* 2010; **97**: 537–543.

Vasamillette J, Hohenberger P, Schoenberg S *et al.* Treatment monitoring with ¹⁸F-FDG PET in metastatic thymoma after ⁹⁰Y-Dotatoc and selective internal radiation treatment (SIRT). *Hellenic Journal of Nuclear Medicine* 2009; **12**: 271–273.

Granberg D, Garske U, Welin S *et al.* Selective internal radiation therapy in patients with carcinoid liver metastases. *Acta Oncologica* 2008; **47**: 1169–1171.

Rhee TK, Lewandowski RJ, Liu DM *et al.* ⁹⁰Y Radioembolization for metastatic neuroendocrine liver tumors: preliminary results from a multi-institutional experience. *Annals of Surgery* 2008; **247**: 1029–1035.

Kennedy AS, Dezarn W, McNeillie P *et al.* Radioembolization for unresectable neuroendocrine hepatic metastases using resin ⁹⁰Y-microspheres: Early results in 148 patients. *American Journal of Clinical Oncology* 2008; **31**: 271–279.

Murthy R, Kamat P, Nunez R *et al.* Yttrium-90 microsphere radioembolotherapy of hepatic metastatic neuroendocrine carcinomas after hepatic arterial embolization. *Journal of Vascular and Interventional Radiology* 2008; **19**: 145–151.

Ho K. Malignant insulinomas with hepatic metastases successfully treated with selective internal radiation therapy. *Clinical Endocrinology (Oxford)* 2006; **65**: 410–411.

Madoff D, Gupta S, Ahrar K *et al.* Update on the management of neuroendocrine hepatic metastases. *Journal of Vascular and Interventional Radiology* 2006; **17**: 1235–1250.

Abstracts on Retrospective Studies in Neuroendocrine Tumour Liver Metastases

Mesick M, Belikoff B, Guevara C *et al.* Bland embolization, chemoembolization, and Y-90 embolization of neuroendocrine metastases to the liver. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S107 Abs. 232.

Kessler J, Lewis A, Singh G *et al.* Efficacy and utilization of liver directed therapies for metastatic neuroendocrine tumors. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S171 Abs. 379.

Chen J, Metz D, Soulen M *et al.* Embolotherapy for neuroendocrine tumor liver metastases: Prognostic factors for hepatic progression-free survival and overall survival. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S36 Abs.70.

Kennard R, Zuckerman D, Weiner A *et al.* Effectiveness of radioembolization of metastatic neuroendocrine tumors of the liver refractory to chemotherapy. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S7–S8 Abs. 9.

Boni G, Bargellini I, Tredici M *et al.* Safety and efficacy of transarterial Y-90 radioembolisation for liver metastases of neuroendocrine tumours. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. P853.

Menga M, Zotta M, Codegone A *et al.* Trans Arterial Radio Embolization (TARE) in the management of intractable hypoglycemia in malignant insulinoma. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. P842.

Ebeling-Barbier C, Garske-Roman U, Antonodimitrakis P *et al.* Radioembolization with ⁹⁰Y-labelled resin microspheres in patients with liver metastases from neuroendocrine tumors. *12th Annual ENETS Conference for the Diagnosis and Treatment of Neuroendocrine Tumor Disease 2015 (ENETS)*; Abs. N1.

García Mónaco R, Peralta O, O'Connor JM *et al.* Selective internal radiation therapy (SIRT) radioembolisation with 90 yttrium in patients with unresectable liver neuroendocrine metastases in a

specialized center. An initial report. *12th Annual ENETS Conference for the Diagnosis and Treatment of Neuroendocrine Tumor Disease 2015 (ENETS)*; Abs. N2.

Etezadi V, Larrea T, Soulen MC *et al.* Comparison of changes in liver and spleen volume and hepatosplenic function after chemoembolization versus ⁹⁰Y radioembolization in patients with metastatic neuroendocrine tumor. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26** (Suppl): S91 Abs.195.

Singla S, Attwood K, Levea C *et al.* Utilizing Ki67 score to predict optimal liver-directed treatment in patients with metastatic neuroendocrine tumors. *ASCO Gastrointestinal Cancers Symposium, Journal of Clinical Oncology* 2015; **33** (Suppl 3): Abs. 370.

Hamner JB, White M, Iruarte PHG, Singh G. Outcomes of liver-directed therapy for metastatic carcinoid tumors. *ASCO Gastrointestinal Cancers Symposium, Journal of Clinical Oncology* 2015; **33** (Suppl 3): Abs. 356.

Gruener J, Nowakowski F.S, Fardanesh R *et al.* Survival following ⁹⁰Y radioembolization for neuroendocrine tumor liver metastases: A retrospective, single-center analysis. *ASCO Annual Meeting, Journal of Clinical Oncology* 2014; **32** (Suppl): Abs. e15166.

Gebhard TA, Suhocki P, Engstrom BI *et al.* Metastatic neuroendocrine tumors to the liver: treatment with bland embolization versus radioembolization. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S13 Abs. 9.

McIntosh EB, El-Rayes B, Kauh J *et al.* Resin-based yttrium-90 radioembolization for metastatic neuroendocrine tumors in a single-center cancer registry. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S36 Abs. 65.

Kharoti Y, Ahuja C, Farsad K *et al.* Clinical and imaging response in neuroendocrine hepatic metastasis treated with Y-90 radioembolization. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S151 Abs. 350.

Ahmed F, Kaufman C, Ray, Jr CE. Yttrium-90 radioembolization for metastatic liver pheochromocytoma. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2012; Abs. P-250.

McIntosh EB, Prajapati HJ, Lawal TO *et al.* Prognostic factors of resin-based Yttrium-90 radioembolization for unresectable metastatic neuroendocrine tumors. *World Conference on Interventional Oncology (WCIO) meeting* 2012; Abs. 49.

Wu YV, Tomaszewski G, Groman AE *et al.* Yttrium-90 microspheres (SIR) verses transarterial chemoembolization (TACE) in the treatment of inoperable metastatic neuroendocrine tumors (NETS). *ASCO Gastrointestinal Cancers Symposium* 2012; Abs. 300.

Engelman ES, Leon-Ferre R, Naraev B *et al.* Comparison of hepatic artery embolization and selective internal radiation therapy for metastatic neuroendocrine tumors. *ASCO Gastrointestinal Cancers Symposium* 2012; Abs. 332.

Kennedy A, Elkordy M, Campbell EE *et al.* ⁹⁰Y radioembolization for neuroendocrine cancers liver metastases provides sustained therapeutic effect with minimal toxicity. *ASCO Gastrointestinal Cancers Symposium* 2012; Abs. 343.

Neperud J, Mahvash A, Garg N *et al.* Imaging patterns of neuroendocrine tumor hepatic metastases as a predictor of response to yttrium-90 radioembolotherapy. *World Conference on Interventional Oncology (WCIO) meeting* 2011; Abs. 45.

Paprottka PM, Hoffmann RT, Trumm CG *et al.* ⁹⁰Yttrium-radioembolization of symptomatic, nonresectable neuroendocrine hepatic metastases. *World Conference on Interventional Oncology (WCIO) meeting* 2011; Abs. 51.

Faust H, Metz D, Soulen MC. Y-90 radioembolization is effective initial and salvage therapy for metastatic neuroendocrine tumors. *World Conference on Interventional Oncology (WCIO) meeting* 2011; Abs. P13.

Murthy R, Mahvash A, Avritscher R *et al.* Y90 resin microsphere arterial radioembolotherapy as a therapeutic adjunct to systemic biologic therapy for advanced hepatic metastatic neuroendocrine tumor progression. *World Conference on Interventional Oncology (WCIO) meeting* 2011; Abs. P36.

Jahangir KS, Majoria R, Hagan J *et al.* Hepatic artery radioembolization (HARE) in the management of progressive metastatic neuroendocrine tumors (NETs): A survival and biochemical response

analysis in geriatric (G) and young (Y) populations. *ASCO Annual Meeting, Journal of Clinical Oncology* 2011; **29** (Suppl): Abs. e19727.

Mayo SC, De Jong MC, Pulitano C *et al.* Surgery vs intra-arterial therapy for neuroendocrine liver metastasis: a multi-center international analysis. *Society of Surgical Oncology (SSO) Annual Cancer Symposium; Annals of Surgical Oncology* 2011; **18** (Suppl 1): S24–25 Abs. 57.

Jakobs TF, Paprottka P, Hoffmann R *et al.* ⁹⁰Yttrium-radioembolization of symptomatic, unresectable neuroendocrine hepatic metastases *Society of Interventional Radiology (SIR) 35th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2010; **21** (Suppl): S14 Abs. 30.

Küçük Ö, Laçın S, Yagcı S *et al.* Treatment of unresectable neuroendocrine liver tumors with Y-90 microsphere: Ankara University experience. *European Association of Nuclear Medicine (EANM) Conference* 2009; Abs. P207.

Slater JWA, Dhanasekaran R, Kauh J *et al.* Transcatheter therapy for symptomatic, unresectable hepatic metastases of neuroendocrine tumors. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2009; Abs. P-154.

Granberg D, Garske U, Sundin A *et al.* Leverembolisering med SIR-Spheres[®] hos patienter med neuroendokrina tumörer. *Svenska Läkaresällskapets Riksstämman* (Swedish Society of Medicine meeting) 2007; Abs. EN 24P. [in Swedish]

McGrath S, Kennedy A, Dezarn W *et al.* Resin ⁹⁰Y-microsphere radioembolisation is effective in controlling hepatic metastases from neuroendocrine primary cancers. *Emerging Trends in Radioembolization using Microspheres: Third Annual Clinical Symposium*; 4–5 May 2007.

Kennedy A, Dezarn W, McNeillie P *et al.* Fractionation, dose selection, and response of hepatic metastases of neuroendocrine tumors after ⁹⁰Y-microsphere brachytherapy. *Annual American Brachytherapy Society Meeting Brachytherapy* 2006; **5** (2): 103 Abs. P75.

Breast Cancer Liver Metastases

Prospective Clinical Studies in Breast Cancer Liver Metastases

Jakobs TF, Hoffmann RT, Fischer T *et al.* Radioembolization in patients with hepatic metastases from breast cancer. *Journal of Vascular and Interventional Radiology* 2008; **19**: 683–690.

Retrospective Studies in Breast Cancer Liver Metastases

Chang J, Charalel R, Noda C *et al.* Liver-dominant Breast Cancer Metastasis: A Comparative Outcomes Study of Chemoembolization Versus Radioembolization. *Anticancer Res* 2018; **38** (5): 3063–3068.

Orwat KP, Beckham TH, Cooper SL *et al.* Pretreatment albumin may aid in patient selection for intrahepatic Y-90 microsphere transarterial radioembolization (TARE) for malignancies of the liver. *J Gastrointest Oncol* 2017; **8** (6): 1072–1078.

Castrellon A, Nguyen S M, Bengoa F *et al.* Impressive response to concomitant platinum-based chemotherapy and yttrium-90 in a patient with heavily pretreated triple-negative breast cancer widely metastasized to the liver. *Cureus* 2017 **9** (6): e1402. ePub doi: 10.7759/cureus.1402.

Pieper CC, Meyer C, Wilhelm KE *et al.* Letter to the editor: Yttrium-90 radioembolization of advanced, unresectable breast cancer liver metastases—A single-center experience. *Journal of Vascular and Interventional Radiology* 2016; **27**: 1939–1940.

Pieper CC, Meyer C, Wilhelm KE *et al.* Yttrium-90 radioembolization of advanced, unresectable breast cancer liver metastases—A single-center experience. *Journal of Vascular and Interventional Radiology* 2016; **27**: 1305–1315.

Pieper CC, Meyer C, Sprinkart AM *et al.* The value of intravoxel incoherent motion model-based diffusion-weighted imaging for outcome prediction in resin-based radioembolization of breast cancer liver metastases. *Oncotargets and Therapy* 2016; **9**: 4089–4098.

Pieper CC, Willinek WA, Meyer C *et al.* Intravoxel incoherent motion diffusion-weighted MR imaging for prediction of early arterial blood flow stasis in radioembolization of breast cancer liver metastases. *Journal of Vascular and Interventional Radiology* 2016; **27**: 1320–1328.

Pieper CC, Sprinkart AM, Meyer C *et al.* Evaluation of a simplified intravoxel incoherent motion (IVIM) analysis of diffusion-weighted imaging for prediction of tumor size changes and imaging response in breast cancer liver metastases undergoing radioembolization: A retrospective single center analysis. *Medicine (Baltimore)* 2016; **95**: e3275.

Golubnitschaja O, Yeghiazaryan K, Stricker H *et al.* Patients with hepatic breast cancer metastases demonstrate highly specific profiles of matrix metalloproteinases MMP-2 and MMP-9 after SIRT treatment as compared to other primary and secondary liver tumours. *BMC Cancer* 2016; **16**: 357.

Fendler WP, Lechner H, Todica A *et al.* Safety, efficacy and prognostic factors after radioembolization of hepatic metastases from breast cancer: A large single center experience in 81 patients. *Journal of Nuclear Medicine* 2016; **57**: 517–523.

Bagni O, Filippi L, Pelle G *et al.* Total lesion glycolysis and sequential ⁹⁰Y-selective internal radiation therapy in breast cancer liver metastases: Preliminary results. *Cancer Biotherapy & Radiopharmaceuticals* 2015; **30**: 421–426.

Seidensticker M, Garlipp B, Scholz S *et al.* Locally ablative treatment of breast cancer liver metastases: Identification of factors influencing survival (the Mammary Cancer Microtherapy and Interventional Approaches (MAMMA MIA) study). *BMC Cancer* 2015; **15**: 517.

Saxena A, Kapoor J, Meteling B *et al.* Yttrium-90 radioembolization for unresectable, chemoresistant breast cancer liver metastases: A large single-center experience of 40 patients. *Annals of Surgical Oncology* 2014; **21**: 1296–1303.

Cianni R, Pelle G, Notarianni E *et al.* Radioembolisation with ⁹⁰Y-labelled resin microspheres in the treatment of liver metastasis from breast cancer. *European Radiology* 2013; **23**: 182–189.

Haug AR, Tiega Donfack BP, Trumm C *et al.* ¹⁸F-FDG PET/CT predicts survival after radioembolization of hepatic metastases from breast cancer. *Journal of Nuclear Medicine* 2012; **53**: 371–377.

Paprottka PM, Schmidt GP, Trumm CG *et al.* Changes in normal liver and spleen volume after radioembolization with ⁹⁰Y-resin microspheres in metastatic breast cancer patients: findings and clinical significance. *Cardiovascular and Interventional Radiology* 2011; **34**: 964–972.

Coldwell D, Kennedy A, Nutting C. The use of yttrium-90 microspheres in the treatment of unresectable hepatic metastases from breast cancer. *International Journal of Radiation Oncology, Biology and Physics* 2007; **69**: 800–804.

Rubin D, Nutting C, Jones B. Metastatic breast cancer in a 54-year-old woman: Integrative treatment with yttrium-90 radioembolization. *Integrative Cancer Therapies* 2004; **3**: 262–267. **Abstracts on Retrospective Studies in Breast Cancer Liver Metastases**

Wilson G, Mullamitha S, Bentley D *et al.* Selective Internal Radiation Therapy (SIRT) with Yttrium-90 resin microspheres and FOLFOX/5FU chemotherapy in pre-treated breast cancer patients with liver metastases: A retrospective analysis of response rates, times to progression and survival of patients treated in Manchester UK between 2010 and 2016. *40th San Antonio Breast Cancer Symposium* 2017; abs: P1-14-06

Soydal C, Kucuk ON, Ozkan E *et al.* Effect of presence of extrahepatic metastases to survival after selective radiation therapy for liver metastases of breast cancer. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. P666.

Cianni R, Pelle G, Rabuffi P *et al.* Radioembolization with yttrium-90 (⁹⁰Y) resin microspheres in the treatment of liver metastases from breast cancer. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811–816 Abs.

Gnesin S, Boubacker A, Adib S *et al.* Dose-response evaluation after yttrium-90 resin microsphere radioembolization of breast cancer liver metastases. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40** (Suppl 2): S234–S235 Abs. OP626.

Coldwell D. Treatment of hepatic metastases from breast cancer with resin Yttrium-90 radioembolization. *2nd European Symposium on Liver-Directed Cancer Therapies using Microspheres* February 2008.

Pancreatic Cancer Liver Metastases

Prospective Clinical Studies in Pancreatic Cancer Liver Metastases

Gibbs P, Do C, Lipton L *et al.* Phase II trial of selective internal radiation therapy and systemic chemotherapy for liver-predominant metastases from pancreatic adenocarcinoma. *BMC Cancer* 2015; **15**: 802.

Gulec SA, Wheeler J, Pennington K *et al.* Chemotherapy with Yttrium-90 microsphere selective internal radiation treatment and selective external radiation treatment in patients with metastatic pancreatic cancer. *Journal of Interventional Oncology* 2009; **2**: 84–92.

Retrospective Studies in Pancreatic Cancer Liver Metastases

Affonso BB, Motta-Leal-Filho JMD, Cavalcante FA Jr *et al.* Aspects of images in magnetic resonance of liver tumors treated with transarterial selective internal radiotherapy with yttrium-90. *Einstein (Sao Paulo)* 2018; **16** (1): eRC4015. ePub doi: 10.1590/s1679-45082017rc4015.

Nasser F, Motta Leal Filho JM, Affonso BB *et al.* Liver Metastases in Pancreatic Acinar Cell Carcinoma Treated with Selective Internal Radiation Therapy with Y-90 Resin Microspheres. *Case Reports Hepatol* 2017; ePub doi: 10.1155/2017/1847428.

Kim AY, Unger K, Wang H, Pishvaian MJ. Incorporating yttrium-90 trans-arterial radioembolization (TARE) in the treatment of metastatic pancreatic adenocarcinoma: A single center experience. *BMC Cancer* 2016; **16**: 492.

Michl M, Lehner S, Paprottka PM *et al.* Use of PERCIST for prediction of progression-free and overall survival after radioembolization for liver metastases from pancreatic cancer. *Journal of Nuclear Medicine* 2016; **57**: 355–360.

Michl M, Haug AR, Jakobs TF *et al.* Radioembolization with yttrium-90 microspheres (SIRT) in pancreatic cancer patients with liver metastases: Efficacy, safety and prognostic factors. *Oncology* 2013; **861**: 24–32.

Krug S, Bartsch DK, Schober M *et al.* Successful selective internal radiotherapy (SIRT) in a patient with a malignant solid pseudopapillary pancreatic neoplasm (SPN). *Pancreatology* 2012; **12**: 423–427.

Cao C, Yan TD, Morris DL, Bester L. Radioembolization with yttrium-90 microspheres for pancreatic cancer liver metastases: results from a pilot study. *Tumori* 2010; **96**: 955–958.

Abstracts on Retrospective Studies in Pancreatic Cancer Liver Metastases

Kim H, Camacho J, Kokabi N *et al.* Phase Ib trial of gemcitabine with yttrium-90 in patients with hepatic tumors of pancreatobiliary origin. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S62 Abs. 130.

Lo G, Ward TJ, Patel RS *et al.* Radioembolization of metastatic pancreatic cancer as salvage therapy after failed chemotherapy: Single-center midterm results *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e23–24 Abs.

Cholangiocarcinoma

Prospective Clinical Studies in Cholangiocarcinoma

KloECKner R, Ruckes C, Kronfeld K *et al.* Selective internal radiotherapy (SIRT) versus transarterial chemoembolization (TACE) for the treatment of intrahepatic cholangiocellular carcinoma (CCC): study protocol for a randomized controlled trial. *Trials* 2014; **15**: 311.

Camacho JC, Kokabi N, Xing M *et al.* Modified response evaluation criteria in solid tumors and European Association for the Study of the Liver criteria using delayed-phase imaging at an early time point predict survival in patients with unresectable intrahepatic cholangiocarcinoma following yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2014; **25**: 256–265.

Saxena A, Bester L, Chua TC *et al.* Yttrium-90 radiotherapy for unresectable intrahepatic cholangiocarcinoma: A preliminary assessment of this novel treatment option. *Annals of Surgical Oncology* 2010; **17**: 484–491.

Retrospective Studies in Cholangiocarcinoma

Reimer P, Virarkar MK, Binnenhei M *et al.* Prognostic factors in overall survival of patients with unresectable intrahepatic cholangiocarcinoma treated by means of yttrium-90 radioembolization: results in therapy-naïve patients. *Cardiovasc Intervent Radiol* 2018; **41** (5): 744–752.

Filippi L, Schillaci O, Cianni R *et al.* Yttrium-90 resin microspheres and their use in the treatment of intrahepatic cholangiocarcinoma. *Future Oncol* 2018; **14** (9): 809–818.

Abeyasinghe V, Sundararajan S, Delriviere L *et al.* Selective internal radiation therapy (SIRT) with yttrium-90 microspheres for unresectable intrahepatic cholangiocarcinoma. *BMJ Case Rep* 2018; ePub doi: 10.1136/bcr-2017-223539.

Shaker TM, Chung C, Varma MK *et al.* Is there a role for Yttrium-90 in the treatment of unresectable and metastatic intrahepatic cholangiocarcinoma? *Am J Surg* 2018; **215** (3): 467–470.

Najran P, Lamarca A, Mullan D *et al.* Update on treatment options for advanced bile duct tumours: radioembolisation for advanced cholangiocarcinoma. *Curr Oncol Rep* 2017; **19** (7): 50.

Orwat KP, Beckham TH, Cooper SL *et al.* Pretreatment albumin may aid in patient selection for intrahepatic Y-90 microsphere transarterial radioembolization (TARE) for malignancies of the liver. *J Gastrointest Oncol* 2017; **8** (6): 1072–1078.

Nezami N, Kokabi N, Camacho JC *et al.* ⁹⁰Y radioembolization dosimetry using a simple semi-quantitative method in intrahepatic cholangiocarcinoma: Glass versus resin microspheres. *Nucl Med Biol* 2018; **59**: 22–28.

Swinburne NC, Biederman DM, Besa C *et al.* Radioembolization for unresectable intrahepatic cholangiocarcinoma: Review of safety, response evaluation criteria in solid tumors 1.1 imaging response and survival. *Cancer Biotherapy and Radiopharmaceuticals* 2017; **32** (5): 161–168.

Wang DS, Sze DY. Authors' reply: Letter to the editor regarding "Yttrium-90 radioembolization for unresectable combined hepatocellular-cholangiocarcinoma". *Cardiovascular and Interventional Radiology* 2017 May 26; ePub doi: 10.1007/s00270-017-1708-z.

Jia Z. Regarding "Yttrium-90 radioembolization for unresectable combined hepatocellular-cholangiocarcinoma". *Cardiovascular and Interventional Radiology* 2017 May 26; ePub doi: 10.1007/s00270-017-1707-0.

Chan LS, Sze DY, Poultsides GA *et al.* Erratum to: Yttrium-90 radioembolization for unresectable combined hepatocellular-cholangiocarcinoma. *Cardiovascular and Interventional Radiology* 2017 May 26; ePub doi: 10.1007/s00270-017-1701-6.

Chan LS, Sze DY, Poultsides GA *et al.* Yttrium-90 radioembolization for unresectable combined hepatocellular-cholangiocarcinoma. *Cardiovascular and Interventional Radiology* 2017 Apr 21; ePub doi: 10.1007/s00270-017-1648-7.

Cuchetti A, Cappelli A, Mosconi C *et al.* Improving patient selection for selective internal radiation therapy of intra-hepatic cholangiocarcinoma: a meta-regression study. *Liver International* 2017 Feb 8; ePub doi: 10.1111/liv.13382.

Ierardi AM, Angileri SA, Patella F *et al.* The role of interventional radiology in the treatment of intrahepatic cholangiocarcinoma. *Medical Oncology* 2017;**34**:11.

- Jia Z, Paz-Fumagalli R, Frey G *et al.* Resin-based Yttrium-90 microspheres for unresectable and failed first-line chemotherapy intrahepatic cholangiocarcinoma: preliminary results. *Journal of Cancer Research and Clinical Oncology* 2017; **143**: 481-489.
- Rayar M, Battista G, Sandri L *et al.* Multimodal therapy including yttrium-90 radioembolization as a bridging therapy to liver transplantation for a huge and locally advanced intrahepatic cholangiocarcinoma. *Journal of Gastrointestinal Liver Diseases* 2016; **25**: 401-404.
- Mosconi C, Gramenzi A, Ascanio S *et al.* Yttrium-90 radioembolization for unresectable/recurrent intrahepatic cholangiocarcinoma: A survival, efficacy and safety study. *British Journal of Cancer* 2016; **115**: 297-302.
- Seidensticker R, Seidensticker M, Doegen K *et al.* Extensive use of interventional therapies improves survival in unresectable or recurrent intrahepatic cholangiocarcinoma. *Gastroenterology Research and Practice* 2016; **2016**: 8732521.
- Soydal C, Kucuk ON, Bilgic S, Ibis E. Radioembolization with ⁹⁰Y resin microspheres for intrahepatic cholangiocellular carcinoma: prognostic factors. *Annals of Nuclear Medicine* 2016; **30**: 29-34.
- Filippi L, Pelle G, Cianni R *et al.* Change in total lesion glycolysis and clinical outcome after ⁹⁰Y radioembolization in intrahepatic cholangiocarcinoma. *Nuclear Medicine and Biology* 2015; **42**: 59-64.
- Högberg J, Rizell M, Hultborn R *et al.* Heterogeneity of microsphere distribution in resected liver and tumour tissue following selective intrahepatic radiotherapy. *EJNMMI Research* 2014; **4**: 48.
- Al-Adra DP, Gill RS, Axford SJ *et al.* Treatment of unresectable intrahepatic cholangiocarcinoma with yttrium-90 radioembolization: A systematic review and pooled analysis. *European Journal of Surgical Oncology* 2014; **41**: 120-127.
- Servajean C, Gilabert M, Piana G *et al.* One case of intrahepatic cholangiocarcinoma amenable to resection after radioembolization. *World Journal of Gastroenterology* 2014; **20**: 5131-5134.
- Camacho JC, Kokabi N, Xing M *et al.* PET response criteria for solid tumors predict survival at 3-months after intra-arterial resin-based ⁹⁰Yttrium (⁹⁰Y) radioembolization therapy for unresectable intrahepatic cholangiocarcinoma. *Clinical Nuclear Medicine* 2014; **39**: 944-950.
- Hyder O, Marsh JW, Salem R *et al.* Intra-arterial therapy for advanced intrahepatic cholangiocarcinoma: A multi-institutional analysis. *Annals of Surgical Oncology* 2013; **20**: 3779-3786.
- Rafi S, Piduru SM, El-Rayes B *et al.* Yttrium-90 radioembolization for unresectable standard-chemorefractory intrahepatic cholangiocarcinoma: Survival, efficacy, and safety study. *Cardiovascular and Interventional Radiology* 2013; **36**: 440-448.
- Högberg J, Rizell M, Hultborn R *et al.* Radiation exposure during liver surgery after treatment with ⁹⁰Y microspheres, evaluated with computer simulations and dosimeter measurements. *Journal of Radiological Protection* 2012; **32**: 439-446.
- Hoffmann RT, Paprottka PM, Schön A *et al.* Transarterial hepatic yttrium-90 radioembolization in patients with unresectable intrahepatic cholangiocarcinoma: Factors associated with prolonged survival. *Cardiovascular and Interventional Radiology* 2012; **35**: 105-116.
- Wijlemans JW, Van Erpecum KJ, Lam MG *et al.* Trans-arterial ⁹⁰yttrium radioembolization for patients with unresectable tumors originating from the biliary tree. *Annals of Hepatology* 2011; **10**: 349-354.
- Haug AR, Heinemann V, Bruns CJ *et al.* ¹⁸F-FDG PET independently predicts survival in patients with cholangiocellular carcinoma treated with ⁹⁰Y microspheres. *European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38**: 1037-1045.
- Gaba RC, Bui JT, Knuttinen MG, Owens CA. Re: radiation lobectomy--a minimally invasive treatment model for liver cancer. *Journal of Vascular and Interventional Radiology* 2009; **20**: 1394-1396.

Abstracts on Retrospective Studies in Cholangiocarcinoma

- Ghodadra A, Xing M, Kim H. Radioembolization improves survival in intrahepatic cholangiocarcinoma: A SEER-Medicare population study. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S112 Abs. 244.
- Kokabi N, Camacho J, Schuster D *et al.* Estimating differences in ⁹⁰Y dosimetry in patients with intrahepatic cholangiocarcinoma treated with resin-based and glass-based microspheres by a simple semi-quantitative method. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S155 Abs. 342.

- Chan L, Sze D, Louie J, Wang D. Yttrium-90 radioembolization for unresectable combined hepatocellular-cholangiocarcinoma. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S153 Abs. 337.
- Cianni R, Pelle RC, Pasqualini V, Saltarell A *et al.* Single-center experience in the treatment of unresectable intrahepatic cholangiocarcinoma with yttrium-90 radioembolization. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2016; **27**: 785.e32 Abs.
- Muli Jogi RK, Tibballs J, Samuelson S. Selective internal radiation therapy (SIRT) with yttrium-90 for unresectable intrahepatic cholangiocarcinoma: Survival, efficacy and safety. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2015; Abs. 2206.4.
- Swinburne NC, Biederman DM, Besa Correa C *et al.* Radioembolization for unresectable intrahepatic cholangiocarcinoma: Single center review of imaging response and survival. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26** (Suppl): S134 Abs. 292.
- Svirydenka H, Pettinato C, Monari F *et al.* Yttrium-90 radiotherapy for unresectable intrahepatic cholangiocarcinoma: preliminary results. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW088.
- Orduña MDP, Prieto I, Rizkallal S *et al.* Preliminary results after radionuclide therapy with yttrium-90 microspheres in metastatic liver disease of cholangiocarcinoma. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. P668.
- Xing M, Kokabi N, Camacho JC *et al.* Survival trends in chemorefractory unresectable intrahepatic cholangiocarcinoma and the effect of resin-based yttrium-90 radioembolization: Surveillance, epidemiology and end results database vs. tertiary cancer center. *Society of Interventional Radiology (SIR) 39th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2014; **25** (Suppl): S103–S104 Abs. 223.
- Kokabi N, Camacho JC, Schuster DM *et al.* Simple method for estimating yttrium-90 dose delivered to intrahepatic cholangiocarcinomas by resin-based radioembolization therapy: A proof of concept study. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2013; Abs. P–335.
- Prajapati HJ, Lawal TO, McIntosh EB *et al.* Yttrium-90 radioembolization for chemorefractory unresectable intrahepatic cholangiocarcinoma (ICC): Survivals and prognostic factors. *World Conference on Interventional Oncology (WCIO) meeting* 2012; Abs. 53.
- Green G, Nguyen T, Imagawa D *et al.* Possible dose-survival relationship in the treatment of unresectable cholangiocarcinoma with yttrium-90 microspheres. *World Conference on Interventional Oncology (WCIO) meeting* 2011; Abs. 50.
- Khanna V, Dhanasekaran R, Barron BJ. *et al.* Yttrium-90 radioembolization (SIR-Spheres) for cholangiocarcinoma: Preliminary study. *Society of Interventional Radiology (SIR) 34th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2009; **26** (2S): S116–S117 Abs. 309.
- Coldwell D. Treatment of unresectable nodular cholangiocarcinoma with yttrium-90 microspheres. *World Congress on Gastrointestinal Cancer Annals of Oncology* 2006; **17** (Sup 6): vi56 Abs. P-102.

Melanoma Liver Metastases

Retrospective Studies in Melanoma Liver Metastases

- Tulokas S, Mäenpää H, Peltola E *et al.* Selective internal radiation therapy (SIRT) as treatment for hepatic metastases of uveal melanoma: a Finnish nation-wide retrospective experience. *Acta Oncol* 2018 Apr 23: 1–8. ePub doi: 10.1080/0284186X.2018.1465587.
- Halenda KM, Kudchadkar RR, Lawson DH *et al.* Reduction of nodular growth pattern of metastatic uveal melanoma after radioembolization of hepatic metastases. *Ocular Oncology and Pathology* 2016; **2**: 160–165.
- Kwok N, Irani Z, Sheth R, Arellano RS. Hepatopulmonary shunt reduction with bland embolization for yttrium-90 radioembolization. *Diagnostic and Interventional Imaging* 2016; **97**: 369–370.

Eldredge-Hindy H, Ohri N, Anne PR *et al.* Yttrium-90 microsphere brachytherapy for liver metastases from uveal melanoma: Clinical outcomes and the predictive value of fluorodeoxyglucose positron emission tomography. *American Journal of Clinical Oncology* 2016; **39**: 189–195.

Xing M, Prajapati HJ, Dhanasekaran R *et al.* Selective internal yttrium-90 radioembolization therapy (⁹⁰Y-SIRT) versus best supportive care in patients with unresectable metastatic melanoma to the liver refractory to systemic therapy: Safety and efficacy cohort study. *American Journal of Clinical Oncology* 2017; **40**: 27–34.

Eaton BR, Kim HS, Schreiber E *et al.* Quantitative dosimetry for yttrium-90 radionuclide therapy: Tumor dose predicts fluorodeoxyglucose positron emission tomography response in hepatic metastatic melanoma. *Journal of Vascular and Interventional Radiology* 2014; **25**: 288–295.

Klingenstein A, Haug AR, Zech CJ, Schaller UC. Radioembolization as locoregional therapy of hepatic metastases in uveal melanoma patients. *Cardiovascular and Interventional Radiology* 2013; **36**: 158–165.

Piduru SM, Schuster DM, Barron BJ *et al.* Prognostic value of ¹⁸F-Fluorodeoxyglucose Positron Emission Tomography-Computed Tomography in predicting survival in patients with unresectable metastatic melanoma to the liver undergoing Yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2012; **23**: 943–948.

Gonsalves CF, Eschelmann DJ, Sullivan KL *et al.* Radioembolization as salvage therapy for hepatic metastasis of uveal melanoma: a single-institution experience. *AJR – American Journal of Roentgenology* 2011; **196**: 468–473.

Murthy R, Mutha P, Madoff DC *et al.* Establishment of the radiation effect of yttrium-90 microspheres: Role of C-arm CT. *Journal of Vascular and Interventional Radiology* 2009; **20**: 422–424.

Kennedy A, Nutting C, Jakobs T *et al.* A first report of radioembolization for hepatic metastases from ocular melanoma. *Cancer Investigation* 2009; **27**: 682–690.

Abstracts on Retrospective Studies in Melanoma Liver Metastases

Duan H, Berzaczy G, Waneck F *et al.* Selective internal radiotherapy (SIRT) in hepatic metastases from uveal melanoma. Treatment response in comparison to transarterial chemoembolization (TACE) with fotemustin. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP574.

Klungboonkrong V, Gill A, Bennet S *et al.* The predictive factors for yttrium-90 radioembolization of hepatic metastatic uveal melanoma: A single institute experience. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26**: S133 Abs 291.

Prajapati HJ, Lawson DH, Kim HS *et al.* Selective internal Yttrium-90 radioembolization therapy (90-Y SIRT) in patients with unresectable metastatic melanoma (MM) to liver, refractory to systemic therapy: Analysis of imaging findings, survival and factors associated with prolonged survival. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S36 Abs. 64.

Prajapati H, Lawal T, Lawson D *et al.* Selective internal Yttrium-90 radioembolization therapy (⁹⁰Y SIRT) in patients with unresectable metastatic melanoma (MM) to liver, refractory to systemic therapy: Analysis of safety, survival and factors associated with prolonged survival. *American Association for the Study of Liver Diseases (AASLD) Congress, Hepatology* 2012; **56** (Suppl 1): Abs. 1367.

Purohit NB, Sheikh FT, Bryant N *et al.* Selective internal radiation therapy (SIRT) in the management of ocular melanoma liver metastases: Largest single centre case series in the UK. *British Nuclear Medicine Society 40th Annual Meeting, Nuclear Medicine Communications* 2012; **33**: 526–561 Abs. P13.

Dhanasekaran R, Khanna V, Lawson D *et al.* Survival benefits of Yttrium-90 radioembolization (SIR-Spheres) for hepatic metastasis from melanoma: Preliminary study. *Society of Interventional Radiology (SIR) 34th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2009; **26** (2S): S65 Abs. 167.

Lung Cancer Liver Metastases

Retrospective Studies in Lung Cancer Liver Metastases

Ghodadra A, Bhatt S, Camacho JC, Kim HS. Abscopal effects and yttrium-90 radioembolization. *Cardiovascular and Interventional Radiology* 2016; **39**: 1076–1080.

Murthy R, Mutha P, Lee JH, Oh Y. Yttrium-90–labeled microsphere radioembolotherapy of liver-dominant metastases from thoracic malignancies. *Journal of Vascular and Interventional Radiology* 2008; **19**: 299–300.

Abstracts on Retrospective Studies in Lung Cancer Liver Metastases

Sotirchos VS, Shady W, Violari EG *et al.* Single-center experience of selective internal radiation therapy as a salvage treatment for small cell lung cancer hepatic metastases. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Poster 87.

Cervical Cancer Liver Metastases

Retrospective Studies in Cervical Cancer Liver Metastases

Gulec SA, Pennington K, Hall M, Fong Y. Preoperative Y-90 microsphere selective internal radiation treatment for tumor downsizing and future liver remnant recruitment: a novel approach to improving the safety of major hepatic resections. *World Journal of Surgical Oncology* 2009; **7**: 6.

Desmoplastic Small Round Cell Tumour Liver Metastases

Retrospective Studies in Desmoplastic Small Round Cell Tumour Liver Metastases

Subbiah V, Murthy R, Anderson PM. [⁹⁰Y]Yttrium microspheres radioembolotherapy in desmoplastic small round cell tumor hepatic metastases. *Journal of Clinical Oncology* 2011; **29**: e292–e294.

Renal Cell Carcinoma Liver Metastases

Retrospective Studies in Renal Cell Carcinoma Liver Metastases

Adashek JJ, Salgia M, Dizman N *et al.* Concomitant radioembolization and immune checkpoint inhibition in metastatic renal cell carcinoma. *Case Rep Oncol* 2018; **11** (2): 276–280.

Abdelmaksoud MH, Louie JD, Hwang GL *et al.* Yttrium-90 radioembolization of renal cell carcinoma metastatic to the liver. *Journal of Vascular and Interventional Radiology* 2012; **23**: 323–330.

Abstracts on Retrospective Studies in Renal Cell Carcinoma Liver Metastases

Fleckenstein FN, Duran R, Chapiro J *et al.* Liver metastases from renal cell carcinoma: Early response assessment after intraarterial therapy using 3D quantitative tumor enhancement analysis on MRI. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Poster 86.

Hemangioendothelioma Liver Metastases

Retrospective Studies in Hemangioendothelioma Liver Metastases

Bostancı EB, Karaman K, Turhan N *et al.* Selective internal radiotherapy for hepatic epithelioid hemangioendothelioma. *The Turkish Journal of Gastroenterology* 2014; **25** (Suppl 1): 252–253.

Karaman B, Battal B, Alagoz E *et al.* Complete disappearance of uptake of FDG in the multifocal liver hemangioendothelioma after radioembolization therapy using yttrium-90 microspheres. *Annals of Nuclear Medicine* 2012; **26**: 440–443.

Laçın S, Küçük O, Oz I, Bilgiç S. Selective intra-arterial Y-90 microsphere therapy in hemangioendothelioma. *Turkish Journal of Gastroenterology* 2011; **22**: 89–92.

Testicular Cancer Liver Metastases

Retrospective Studies in Testicular Cancer Liver Metastases

Sideras PA, Sofocleous CT, Brody LA *et al.* Superselective internal radiation with yttrium-90 microspheres in the management of a chemorefractory testicular liver metastasis. *Cardiovascular and Interventional Radiology* 2012; **35**: 426–429.

Primary or Metastatic Soft Tissue Sarcomas of the Liver

Abstracts on Retrospective Studies in Primary or Metastatic Soft Tissue Sarcomas of the Liver

Pierce D, Monroe E, Johnson G *et al.* Promising efficacy with liver-directed therapies for the treatment of metastatic and unresectable hepatic sarcomas. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S173 Abs. 384.

Mauro D, Kim E, Tabori N *et al.* Hepatic radioembolization for treatment of metastatic sarcoma as salvage therapy after failed chemotherapy: Single center midterm results. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S154–S155 Abs. 341.

Transue DL, Hackworth J, Johnson MS *et al.* Multi-institutional experience treating metastatic soft tissue sarcomas using yttrium-90 microspheres. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26** (Suppl): S133 Abs. 290.

Oh JC, Lam MG, Ganjoo KN *et al.* Y-90 radioembolization of primary and metastatic soft tissue sarcomas of the liver. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S148 Abs. 342.

Liver Tumours from Gastrointestinal Stromal Tumours (GIST)

Retrospective Studies in Liver Tumours from Gastrointestinal Stromal Tumours

Vassos N, Agaimy A, Hohenberger W, Croner RS. Management of liver metastases of gastrointestinal stromal tumors (GIST). *Annals of Hepatology* 2015; **14**: 531–539.

Abstracts on Retrospective Studies in Liver Tumours from Gastrointestinal Stromal Tumours

Hohenberger P, Rathmann N, Sadick M *et al.* The contribution of local treatment measures to control imatinib-resistant liver metastases of gastrointestinal stromal tumors. *Society of Surgical Oncology (SSO) Annual Cancer Symposium* 2015. Abs. P414.

Thyroid Cancer Liver Metastases

Retrospective Studies in Thyroid Cancer Liver Metastases

Arslan N, Üstünsöz B, Alagöz E *et al.* Medüller tiroid kanserli bir olguda inoperabl karaciğer metastazlarının yttrium-90 (Y-90) işaretli mikroküreler ile selektif intraarteriyel radyonüklid tedavisi: ilk ulusal uygulama [Selective intraarterial radionuclide radiotherapy of inoperable liver metastases with yttrium-90 (Y-90) labeled microspheres in a patient with medullary thyroid carcinoma metastasis in the liver: first national administration]. *Gülhane Tıp Dergisi / Gulhane Medical Journal* 2012; **54**: 57–61. [in Turkish]

Gastro-Oesophageal Cancer Liver Metastases

Retrospective Studies in Liver Metastases from Gastro-Oesophageal Cancers

Bailey DL, Lee A, Li BT, Clarke SJ. PET monitoring of liver directed selective internal radionuclide therapy for metastatic gastro-oesophageal cancer. *BMJ Case Report* 2016, Jun 30; ePub doi: 10.1136/bcr-2016-215645.

Liver Metastases from Cancer of Unknown Primary

Retrospective Studies in Liver Metastases from Cancer of Unknown Primary

Kubisch CH, Beigel F, Ihrler S *et al.* Oesophageal ulceration after selective internal radiation therapy in a patient with carcinoma of unknown primary. *Zeitschrift für Gastroenterologie / German Journal of Gastroenterology* 2010; **48**: 546–550.

Tehrani-pour N, Al-Nahhas A, Canelo R *et al.* Concordant F-18 FDG PET and Y-90 Bremsstrahlung scans depict selective delivery of Y-90-microspheres to liver tumors: Confirmation with histopathology. *Clinical Nuclear Medicine* 2007; **32**: 371–374

Liver Tumours from Various Cancer Sources

Prospective Clinical Studies in Liver Tumours from Various Cancer Sources

Barabasch A, Heinzl A, Bruners P *et al.* Diffusion-weighted MRI is superior to PET/CT in Predicting Survival of Patients Undergoing ⁹⁰Y Radioembolization of Hepatic Metastases. *Radiology* 2018 May 21: 170408. ePub doi: 10.1148/radiol.2018170408.

Cohen SJ, Konski AA, Putnam S *et al.* Phase I study of capecitabine combined with radioembolization using yttrium-90 resin microspheres (SIR-Spheres) in patients with advanced cancer. *British Journal of Cancer* 2014; **111**: 265–271.

Morsbach F, Sah BR, Spring L *et al.* Perfusion CT best predicts outcome after radioembolization of liver metastases: a comparison of radionuclide and CT imaging techniques. *The European Society of Radiology* 2014; **24**: 1455–1465.

Carpizo DR, Gensure RH, Yu X *et al.* Pilot study of angiogenic response to yttrium-90 radioembolization with resin microspheres. *Journal of Vascular and Interventional Radiology* 2014; **25**: 297–306.

Morsbach F, Pfammatter T, Reiner CS *et al.* Computed tomographic perfusion imaging for the prediction of response and survival to transarterial radioembolization of liver metastases. *Investigative Radiology* 2013; **48**: 787–794.

Wong CO, Savin M, Sherpa KM *et al.* Regional yttrium-90 microsphere treatment of surgically unresectable and chemotherapy-refractory metastatic liver carcinoma. *Cancer Biotherapy & Radiopharmaceuticals* 2006; **21**: 305–313.

Wong C, Qing F, Savin M *et al.* Reduction of metastatic load to liver after intraarterial hepatic yttrium-90 radioembolization as evaluated by [¹⁸F] Fluorodeoxyglucose positron emission tomographic imaging. *Journal of Vascular and Interventional Radiology* 2005; **16**: 1101–1106.

Lim L, Gibbs P, Yip D *et al.* Prospective study of treatment with selective internal radiation therapy spheres in patients with unresectable primary or secondary hepatic malignancies. *Internal Medicine Journal* 2005; **35**: 222–227.

Retrospective Studies in Liver Tumours from Various Cancer Sources

Reinders MTM, Mees E, Powerski MJ *et al.* Radioembolisation in Europe: a survey amongst CIRSE members. *Cardiovasc Intervent Radio* 2018 May 8. ePub doi: 10.1007/s00270-018-1982-4.

Miller MD, Sze DY, Padia SA *et al.* Response and overall survival for yttrium-90 radioembolization of hepatic sarcoma: a multicenter retrospective study. *J Vasc Interv Radiol* 2018; **29** (6): 867–873.

Ingrisch M, Schöppe F, Paprottka K *et al.* Prediction of ⁹⁰Y radioembolization outcome from pretherapeutic factors with random survival forests. *J Nucl Med* 2018 May; **59** (5): 769–773.

Orwat KP, Beckham TH, Cooper SL *et al.* Pretreatment albumin may aid in patient selection for intrahepatic Y-90 microsphere transarterial radioembolization (TARE) for malignancies of the liver. *J Gastrointest Oncol* 2017; **8** (6): 1072–1078.

Pardo F, Sangro B, Lee RC *et al.* The Post-SIR-Spheres Surgery Study (P4S): Retrospective Analysis of Safety Following Hepatic Resection or Transplantation in Patients Previously Treated with Selective Internal Radiation Therapy with Yttrium-90 Resin Microspheres. *Annals of Surgical Oncology*. 2017; **24**(9): 2465-2473.

Banovac F, Brown DB. US RESiN registry for the study and evaluation of patients treated with SIR-Spheres. *Interventional Oncology* 360 2016; **4**: E101–E111.

- Paprottka KJ, Schoeppe F, Ingrisch M *et al.* Pre-therapeutic factors for predicting survival after radioembolization: a single-center experience in 389 patients. *European Journal of Nuclear Medicine and Molecular Imaging* 2017 Feb 4; ePub doi: 10.1007/s00259-017-3646-z.
- Wright GP, Marsh JW, Varma MK *et al.* Liver resection after selective internal radiation therapy with yttrium-90 is safe and feasible: A bi-institutional analysis. *Annals of Surgery* 2016 Nov 22; ePub doi: 10.1245/s10434-016-5697-y.
- Burnett NP, Akinwande O, Scoggins CR *et al.* Comparison of Yttrium-90 therapy for unresectable liver metastasis: glass versus biocompatible resin microspheres. *Journal of Radiation Oncology* 2016; ePub doi: 10.1007/s13566-016-0282-3.
- Golubnitschaja O, Yeghiazaryan K, Stricker H *et al.* Patients with hepatic breast cancer metastases demonstrate highly specific profiles of matrix metalloproteinases MMP-2 and MMP-9 after SIRT treatment as compared to other primary and secondary liver tumours. *BMC Cancer* 2016; **16**: 357.
- Rathmann N, Budjan J, Mari F *et al.* Semiautomatic whole-lesion apparent diffusion coefficient assessment for early prediction of liver tumor response to radioembolization. *Anticancer Research* 2016; **36**: 2961–2966.
- Braat MNGJA, van den Hoven AF, van Doormaal P *et al.* The caudate lobe: the blind spot in radioembolization or an overlooked opportunity? *Cardiovascular and Interventional Radiology* 2016; **39**: 847–854.
- D'Emic N, Engelman A, Molitoris J *et al.* Prognostic significance of neutrophil-lymphocyte ratio and platelet-lymphocyte ratio in patients treated with selective internal radiation therapy. *Journal of Gastrointestinal Oncology* 2016; **7**: 269–277.
- Roberson II JD, McDonald AM, Baden CJ *et al.* Factors associated with increased incidence of severe toxicities following yttrium-90 resin microspheres in the treatment of hepatic malignancies. *World J Gastroenterol* 2016; **22**: 3006–3014.
- Kessler J, Lewis A, Gagandeep S *et al.* Radioembolization following liver resection: Safety and dosing considerations. *Journal of Vascular and Interventional Radiology* 2016; **27**: 46–51.
- Teo JY, Allen JC Jr, Ng DC *et al.* A systematic review of contralateral liver lobe hypertrophy after unilobar selective internal radiation therapy with ⁹⁰Y. *HPB (Oxford)* 2016; **18**: 7–12.
- Xing M, Lahti S, Kokabi N *et al.* ⁹⁰Y radioembolization lung shunt fraction in primary and metastatic liver cancer as a biomarker for survival. *Clinical Nuclear Medicine* 2016; **41**: 21–27.
- Demirelli S, Erkilic M, Oner AO *et al.* Evaluation of factors affecting tumor response and survival in patients with primary and metastatic liver cancer treated with microspheres. *Nuclear Medicine Communications* 2015; **36**: 340–349.
- Pieper CC, Willinek WA, Thomas D *et al.* Incidence and risk factors of early arterial blood flow stasis during first radioembolization of primary and secondary liver malignancy using resin microspheres: An initial single-center analysis. *European Radiology* 2015; **26**: 2779–2789.
- Ward TJ, Tamrazi A, Lam M *et al.* Management of high hepatopulmonary shunting in patients undergoing hepatic radioembolization. *Journal of Vascular and Interventional Radiology* 2015; **26**: 1751–1760.
- Moir JA, Burns J, Barnes J *et al.* Selective internal radiation therapy for liver malignancies. *British Journal of Surgery* 2015; **102**: 1533–1540.
- Henrie AM, Wittstrom K, Delu A, Deming P. Evaluation of liver biomarkers as prognostic factors for outcomes to yttrium-90 radioembolization of primary and secondary liver malignancies. *Cancer Biotherapy and Radiopharmaceuticals* 2015; **30**: 305–309.
- Rathmann N, Diehl SJ, Dinter D *et al.* Radioembolization in patients with progressive gastrointestinal stromal tumor liver metastases undergoing treatment with tyrosine kinase inhibitors. *Journal of Vascular and Interventional Radiology* 2015; **26**: 231–238.
- Henry LR, Hostetter RB, Ressler B *et al.* Liver resection for metastatic disease after ⁹⁰Y radioembolization: A case series with long-term follow-up. *Annals of Surgical Oncology* 2015; **22**: 467–474.
- Cholapranee A, van Houten D, Deitrick G *et al.* Risk of Liver Abscess formation in patients with prior biliary intervention following yttrium-90 radioembolization. *Cardiovascular and Interventional Radiology* 2015; **38**: 397–400.
- Gaba RC, Zivin SP, Dikopf MS *et al.* Characteristics of primary and secondary hepatic malignancies associated with hepatopulmonary shunting. *Radiology* 2014; **271**: 602–612.

- Reiner C, Morsbach F, Sah B *et al.* Early treatment response evaluation after yttrium-90 radioembolization of liver malignancy with CT perfusion. *Journal of Vascular and Interventional Radiology* 2014; **25**: 747–759.
- Zarva A, Mohnike K, Damm R *et al.* Safety of repeated radioembolizations in patients with advanced primary and secondary liver tumors and progressive disease after first selective internal radiotherapy. *Journal of Nuclear Medicine* 2014; **55**: 360–366.
- Loveman E, Jones J, Clegg A *et al.* The clinical effectiveness and cost-effectiveness of ablative therapies in the management of liver metastases: Systematic review and economic evaluation. *Health Technology Assessment* 2014; **18**: 1–284.
- Garlipp B, de Baere T, Damm R *et al.* Left-liver hypertrophy after therapeutic right-liver radioembolization is substantial but less than after portal vein embolization. *Hepatology* 2014; **59**: 1864–1873.
- Fernández-Ros N, Silva N, Bilbao JI *et al.* Partial liver volume radioembolization induces hypertrophy in the spared hemi liver and no major signs of portal hypertension. *HPB (Oxford)* 2014; **16**: 243–293.
- Bester L, Feitelson S, Milner B *et al.* Impact of prior hepatectomy on the safety and efficacy of radioembolization with yttrium-90 microspheres for patients with unresectable liver tumors. *American Journal of Clinical Oncology* 2014; **37**: 454–460.
- Smits ML, van den Hoven AF, Rosenbaum CE *et al.* Correction: Clinical and laboratory toxicity after intra-arterial radioembolization with ⁹⁰Y-microspheres for unresectable liver metastases. *PLoS One*. 2013 Oct 23; ePub doi: 10.1371/annotation/559e04cc-b09c-4b5c-9405-56837f6d5627. [Correction on Smits ML *et al.* *PLoS One* 2013; **8**: e69448.
- Peterson JL, Vallow LA, Johnson DW *et al.* Complications after ⁹⁰Y microsphere radioembolization for unresectable hepatic tumors: An evaluation of 112 patients. *Brachytherapy* 2013; **12**: 573–579.
- Smits ML, van den Hoven AF, Rosenbaum CE *et al.* Clinical and laboratory toxicity after intra-arterial radioembolization with ⁹⁰Y-microspheres for unresectable liver metastases. *PLoS One* 2013; **8**: e69448.
- Bester L, Meteling B, Pocock N *et al.* Radioembolisation with Yttrium-90 microspheres: An effective treatment modality for unresectable liver metastases. *Journal of Medical Imaging and Radiation Oncology* 2013; **57**: 72–80.
- Ahmadzadehfar H, Meyer C, Ezziddin S *et al.* Hepatic volume changes induced by radioembolization with ⁹⁰Y resin microspheres. A single-centre study. *European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40**: 80–90.
- Lam MG, Abdelmaksoud MH, Chang DT *et al.* Safety of ⁹⁰Y radioembolization in patients who have undergone previous external beam radiation therapy. *International Journal of Radiation Oncology, Biology and Physics* 2013; **87**: 323–329.
- Turkmen C, Ucar A, Poyanli A *et al.* Initial outcome after selective intraarterial radionuclide therapy with yttrium-90 microspheres as salvage therapy for unresectable metastatic liver disease. *Cancer Biotherapy & Radiopharmaceuticals* 2013; **28**: 534–540.
- Lam MG, Louie JD, Iagaru AH *et al.* Safety of repeated Yttrium-90 radioembolization. *Cardiovascular and Interventional Radiology* 2013; **36**:1320–1328..
- Seidensticker R, Seidensticker M, Damm R *et al.* Hepatic toxicity after radioembolization of the liver using ⁹⁰Y-microspheres: Sequential lobar versus whole liver approach. *Cardiovascular and Interventional Radiology* 2012; **35**:1109–1118.
- Ahmadzadehfar H, Meyer C, Ezziddin S *et al.* Hypertrophy of the contralateral hepatic lobe after selective internal radiation therapy. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 44–45.
- Zalom M, Yu R, Friedman M *et al.* FDG PET/CT as a prognostic test after ⁹⁰Y radioembolization in patients with metastatic hepatic disease. *Clinical Nuclear Medicine* 2012; **37**: 862–865.
- Gensure RH, Foran DJ, Lee VM *et al.* Evaluation of hepatic tumor response to Yttrium-90 radioembolization therapy using texture signatures generated from contrast-enhanced CT images. *Academic Radiology* 2012; **19**: 1201–1207.
- Walrand S, Lhommel R, Goffette P *et al.* Hemoglobin level significantly impacts the tumor cell survival fraction in humans after internal radiotherapy. *European Journal of Nuclear Medicine and Molecular Imaging Research* 2012; **2**: 20.

- Bester L, Meteling B, Pocock N *et al.* Radioembolization versus standard care of hepatic metastases: Comparative retrospective cohort study of survival outcomes and adverse events in salvage patients. *Journal of Vascular and Interventional Radiology* 2012; **23**: 96–105.
- Nosher JL, Ohman-Strickland PA, Jabbour S *et al.* Changes in liver and spleen volumes and liver function after radioembolization with yttrium-90 resin microspheres. *Journal of Vascular and Interventional Radiology* 2011; **22**: 706–716.
- Kucuk ON, Soydal C, Lacin S *et al.* Correction: Selective intraarterial radionuclide therapy with Yttrium-90 (Y-90) microspheres for unresectable primary and metastatic liver tumors. *World Journal of Surgical Oncology* 2011; **9**: 120.
- Kucuk ON, Soydal C, Lacin S *et al.* Selective intraarterial radionuclide therapy with Yttrium-90 (Y-90) microspheres for unresectable primary and metastatic liver tumors. *World Journal of Surgical Oncology* 2011; **9**: 86.
- Whitney R, Tatum C, Hahl M *et al.* Safety of hepatic resection in metastatic disease to the liver after yttrium-90 therapy. *Journal of Surgical Research* 2011; **166**: 236–240.
- Brown RE, Bower MR, Metzger TL *et al.* Hepatectomy after hepatic arterial therapy with either yttrium-90 or drug-eluting bead chemotherapy: is it safe? *HPB (Oxford)* 2011; **13**: 91–95.
- Gayed IW, Wahba H, Wan D *et al.* Effect of Y-90 SIR-Spheres therapy for multiple liver metastases in a variety of tumors. *Journal of Cancer Science & Therapy* 2010; **2**: 43-46.
- Iñarrairaegui M, Bilbao JI, Rodríguez M *et al.* Liver radioembolization using ⁹⁰Y resin microspheres in elderly patients: tolerance and outcome. *Hospital Practice (Minneapolis)* 2010; **38**: 103–109.
- Omed A, Lawrance JA, Murphy G *et al.* A retrospective analysis of selective internal radiation therapy (SIRT) with yttrium-90 microspheres in patients with unresectable hepatic malignancies. *Clinical Radiology* 2010; **65**: 720–728.
- Evans KA, Richardson MG, Pavlakis N *et al.* Survival outcomes of a salvage patient population after radioembolization of hepatic metastases with yttrium-90 microspheres. *Journal of Vascular and Interventional Radiology* 2010; **21**: 1521–1526.
- Peynircioglu B, Cil B, Bozkurt F *et al.* Radioembolization for the treatment of unresectable liver cancer: initial experience at a single center. *Diagnostic and Interventional Radiology* 2010; **16**: 70–78.
- Cianni R, Urigo C, Notarianni E *et al.* Radioembolisation using yttrium 90 (Y-90) in patients affected by unresectable hepatic metastases. *La Radiologia Medica* 2010; **115**: 619–633.
- Hoffmann RT, Jakobs TF, Kubisch C *et al.* Radiofrequency ablation after selective internal radiation therapy with Yttrium90 microspheres in metastatic liver disease – is it feasible? *European Journal of Radiology* 2010; **74**: 199–205.
- Johnson DW, Mori, KH, O’Laughlin SR *et al.* Safety and efficacy of Yttrium-90 labeled microsphere radiation treatment for hepatic metastases. *Northeast Florida Medicine* 2009; **60**: 37–41.
- Stuart JE, Tan B, Myerson RJ *et al.* Salvage radioembolization of liver-dominant metastases with a resin-based microsphere: Initial outcomes. *Journal of Vascular and Interventional Radiology* 2008; **19**: 1427–1433.
- Khodjibekova M, Szyszko T, Singh A *et al.* Treatment of primary and secondary liver tumours with selective internal radiation therapy. *Journal of Experimental Clinical Cancer Research* 2007; **26**: 561–570.
- Rowe B, Weiner R, Foster J *et al.* ⁹⁰Yttrium microspheres for nonresectable liver cancer: the University of Connecticut Health Center experience. *Connecticut Medicine* 2007; **71**: 523–528.
- Jiao LR, Szyszko T, Al-Nahhas *et al.* Clinical and imaging experience with yttrium-90 microspheres in the management of unresectable liver tumours. *European Journal of Surgical Oncology* 2007; **33**: 597–602.
- Gulec SA, Mesoloras G, Dezarn WA *et al.* Safety and efficacy of Y-90 microsphere treatment in patients with primary and metastatic liver cancer: The tumor selectivity of the treatment as a function of tumor to liver flow ratio. *Journal of Translational Medicine* 2007; **5**: 15.
- Szyszko T, AL-Nahhas A, Canelo R *et al.* Assessment of response to treatment of unresectable liver tumours with ⁹⁰Y microspheres: Value of FDG PET versus computed tomography. *Nuclear Medicine Communications* 2007; **28**: 15–20.
- Jakobs TF, Hoffmann RT, Poepperl G *et al.* Mid-term results in otherwise treatment refractory primary or secondary liver confined tumours treated with selective internal radiation therapy (SIRT) using ⁹⁰yttrium resin-microspheres. *European Radiology* 2007; **17**: 1320–1330.

Brock H; Günther RW; Haage P. Leberzirrhose als folge selektiver hepatischer radioembolisation mit ⁹⁰Yttrium-mikrosphären. *Fortschritte auf dem Gebiet der Röntgenstrahlen und der bildgebenden Verfahren* 2006; **178**: 538–549. [in German]

Poepperl G, Helmberger T, Munzing W *et al.* Selective internal radiation therapy with SIR-Spheres in patients with nonresectable liver tumors. *Cancer Biotherapy & Radiopharmaceuticals* 2005; **20**: 200–208.

Abstracts on Retrospective Studies in Liver Tumours from Various Cancer Sources

Olsen J, Savin M, Campbell J *et al.* Yttrium-90 radioembolization deliveries: Incidence and role of multiple deliveries during single procedures. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2016; **27**: 785.e32 Abs.

Chehade F, Daher J, Kamar F *et al.* Resin-based 90 yttrium radioembolization of liver tumors: The three first cases performed in Lebanon. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. P849.

Herrera R, Plaza de las Heras I, Galan C *et al.* Radioembolization of primary and / or metastatic hepatic tumors with 90-yttrium microspheres: Our experience. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. P848.

Acar E, Çapa Kaya G, Gülcü A *et al.* The clinical efficacy and effectiveness of the Y-90 radioembolization therapy for the treatment of liver malignancies. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. P799.

da Costa LG, Santos JAM, Gonçalves B *et al.* Response evaluation criteria in solid tumours (RECIST) in a group of patients submitted to Y-90 resin microspheres radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. PW118.

Mills-Robertson E, Hunt S, Dunn A *et al.* Increased toxicity following SIR-Spheres radioembolization in patients with hypoalbuminemia. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2015; Abs. 2206.5.

Marsico V, Vasile E, Brandi G *et al.* Transarterial chemo-embolization (TACE) and radio-embolization (TARE) in the combined modality treatment of advanced biliary tract cancer (aBTC): Evaluation of feasibility and activity. *2015 ESMO WCGIC Meeting; Annals of Oncology* 2015; **26** (Suppl 4): Abs P-115.

James TR, Morgan R, Robinson A *et al.* Survival outcomes of patients with liver disease following treatment with glass- versus resin-based yttrium-90 (Y-90) radioembolization. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 80.

Goldin D, George D, Chen C *et al.* Incomplete yttrium-90 infusion and high residual radioactivity during radioembolization. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26** (Suppl): S111 Abs. 240.

Bishay V, Edwards M, Lo G *et al.* Hypertrophy of future liver remnant in unresectable liver cancer following radioembolization with resin microspheres. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26** (Suppl): S91 Abs. 193.

Morgan R, Robinson A, James TR *et al.* Survival differences in glass versus resin radioembolization of hepatic malignancies. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Paper 16.

Bilbao JI, Sangro B, Schoen M *et al.* The post-SIR-Spheres surgery study (P4S): Analysis of outcomes following hepatic resection of patients previously treated with selective internal radiation therapy (SIRT), with or without exposure to future liver remnant (FLR) *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; Abs. 192.

Pardo F, Schoen M, Rheun-Chuan L *et al.* The post-SIR-Spheres surgery study (P4S): Analysis of outcomes following hepatic resection or transplantation in 101 patients previously treated with selective internal radiation therapy (SIRT). *Annual Americas Hepato-Pancreato-Biliary Congress* 2015; **S1** (suppl): Abs MO-B.02

- Orwat KE, Cooper SL, Ashenafi M *et al.* Pretreatment albumin may help select patients for intrahepatic Y-90 microsphere transarterial radioembolization (TARE) for malignancies of the liver. *ASCO Gastrointestinal Cancers Symposium, Journal of Clinical Oncology* 2015; **33** (suppl 3): Abs. 453.
- Redman RA, Coldwell D, Sharma VR *et al.* Survival after yttrium-90 radioembolization in elderly and non elderly patients with hepatocellular carcinoma or colorectal cancer liver metastases. *ASCO Gastrointestinal Cancers Symposium, Journal of Clinical Oncology* 2015; **33** (suppl 3): Abs. 449.
- Alagoz E, Ince S, San H *et al.* Usefulness of yttrium-90 resin microspheres in patients with liver metastases of other than colorectal origin. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. P667.
- Adib S, Baechler S, Gnesin S *et al.* Selective internal radiotherapy for unresectable liver tumours: The Lausanne experience. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40** (Suppl 2): S233–S234 Abs. OP623.
- Kay M, Leach S, Stedman B *et al.* Liver directed treatment with selective internal radiation therapy (SIRT): 4 year experience in a UK tertiary referral centre. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40** (Suppl 2): S248 Abs. OP693.
- Seidensticker M, Garlipp B, de Baere T *et al.* Matched-pair analysis: Unilobar transarterial radioembolization versus portal vein embolization for induction of contralateral liver hypertrophy in patients with secondary liver malignancies. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2012; Abs.3109.1.
- Martinez BK, Gupta NK, Flanders V *et al.* Safety and feasibility of yttrium-90 (Y-90) treatment for primary and metastatic liver tumors at a community hospital. *ASCO Annual Meeting 2013, Journal of Clinical Oncology* **31** (Suppl): Abs. e14698.
- Uslu L, Gulsen F, Sager S *et al.* Radioembolization with Yttrium-90 microspheres in unresectable primary and metastatic liver tumors. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0510.
- De Cicco C, Cremonesi M, Colandrea M *et al.* Response assessment after radioembolization with ⁹⁰Y-microspheres for liver metastases: Comparing outcomes with FDG-PET imaging. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0132.
- Seidensticker M, Garlipp B, Seidensticker R *et al.* Induction of hypertrophy of the left hepatic lobe by unilateral right-sided radioembolization using ⁹⁰Y-labelled resin microspheres in patients with right-sided secondary malignant liver tumors. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2012; Abs. P–238.
- Dang RP, Fischman AM, Kim E *et al.* Safety and feasibility of whole-liver Yttrium-90 (Y90) radioembolization. *World Conference on Interventional Oncology (WCIO) meeting* 2012; Poster 40.
- Cholapranee A, Dagli M, Mondschein JI *et al.* Y-90 Radioembolization as second-line therapy for hepatic metastases. *World Conference on Interventional Oncology (WCIO) meeting* 2012; Poster 41.
- Sharma A, Kolar B, Katz A *et al.* Y90 radioembolization: Comparison of effects on clinical performance status and liver toxicity in patients with HCC and hepatic metastases from other primary tumors - a single institutional experience. *World Conference on Interventional Oncology (WCIO) meeting* 2012; Poster 44.
- Withrow RC, Pohl C. Treatment of Stage 4 gynecologic malignancies by hepatic radioembolization. *World Conference on Interventional Oncology (WCIO) meeting* 2012; Poster 45.
- Bozkurt M, Volkan-Salanci B, Peynircioglu B *et al.* Accelerated progression of metastatic disease shortly after Y90-microsphere treatment: Is there a causative relation? *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2012; **53** (Suppl 1): Abs. 441.
- Wilhelm K, Logvinski T, Meyer C *et al.* Lobar Yttrium-90 (⁹⁰Y) radioembolization for induction of contralateral lobar hypertrophy in patients with liver metastases. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2012; **23**: 577.e4 Abs.

- Mahvash A, Moayyad J, Shreyaah S *et al.* Y90 radioembolization in patients with compromise of the Ampulla of Vater. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2012; **23**: 577.e12 Abs.
- Nitz MD, Anderson CL, Saad WE *et al.* Preliminary analysis of angiographic contrast density as a predictor of liver perfusion change in radioembolization. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S148–S149 Abs. 371.
- Saxena A, Chua TC, Meteling B *et al.* Radioembolization with yttrium-90 microspheres is associated with a significantly improved survival compared to conservative therapy after treatment of unresectable hepatic tumors: A large single center experience of 537 patients. *65th Annual Cancer Symposium of the Society of Surgical Oncology, Asia-Pacific Journal of Clinical Oncology* 2012; **7** (Suppl S4): Abs. 212.
- Fernández-Ros NF, Silva N, Iñarrairaegui M *et al.* La radioembolización hepática lobar induce hipertrofia del lóbulo contralateral. *Spanish Association for the Study of the Liver* 2012; Abs.
- Nichols EM, Grabowski S, Hanlon A *et al.* Performance status (PS), number of lesions and interval from metastatic diagnosis to treatment (IMDTT) predict for overall survival (OS) in patients treated with hepatic transarterial radioembolization (TARE) with yttrium-90 (Y90) microspheres. *53rd Annual Meeting of American Society for Radiation Oncology (ASTRO), International Journal of Radiation Oncology, Biology and Physics* 2011; **81** (2 Suppl): S346–S347 Abs. 2281.
- Bagni O, D'Arienzo M, Salvatori R *et al.* Can ⁹⁰Y-PET predict the outcome of lesions after SIRT? Biodistribution assessment and preliminary data of Voxel Based Dosimetry. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. OP023.
- Kucuk ON, Soydal C, Lacin S *et al.* Intra-arterial radioembolization with Y-90 for unresectable primary and metastatic liver tumors and evaluation of treatment response by FDG PET/CT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. P470.
- Uslu L, Arslan E, Ozhan M *et al.* Radioembolization using yttrium-90 microspheres for advanced primary and metastatic liver malignancies. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. P474.
- Kaplan GH, Yıldız A, Yılmaz S *et al.* The role radioembolization for treatment of liver malignancies. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. P476.
- Cove-Smith L, Wilson G. Efficacy and toxicity of selective internal radiation therapy (SIRT) with yttrium 90 microspheres for the treatment of unresectable hepatic tumours: a retrospective analysis of 58 patients. *13th World Congress on Gastrointestinal Cancer, Annals of Oncology* 2011; **22** (Suppl 5): v64 Abs. P-0150.
- Sella D, Rilling WS. Cost considerations in interventional oncology: Are IO treatments expensive relative to the alternatives? *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2011; **22** (Suppl): S108–109 Abs. 253.
- Presidente A, Lombardi G, D'angelo R *et al.* Selective internal radiation therapy with ⁹⁰Y microspheres for liver metastases: single-centre experience. *European Congress of Radiology* 2011; Abs. C-0718.
- Subbiah IM, CenP, Tanikella R *et al.* Radioembolization of unresectable primary and secondary hepatic malignancies using yttrium-90: The University of Texas at Houston experience. *ASCO Gastrointestinal Cancers Symposium, Journal of Clinical Oncology* 2011; **29** (Suppl 4): Abs. 311.
- Nutting C, Kennedy A, Kortz E. Radioembolization of liver metastases in the setting of a violated Ampulla. *GEST meeting* 2010; Abs.
- Arslan N, Emi M, Alagoz E *et al.* Selective internal radiation therapy (SIRT) with ⁹⁰Y-microspheres for unresectable malignant liver tumors. *European Association of Nuclear Medicine (EANM) Conference* 2009; Abs. PW060.
- Küçük Ö, Laçin S, Yagcı S *et al.* Evaluation of Y-90 microsphere therapy response of metastatic or primary liver tumor with PDG-PET/CT: Ankara University preliminary results. *European Association of Nuclear Medicine (EANM) Conference* 2009; Abs. P208.

- Seaton T, Naji M, Tait P *et al.* Selective internal radiotherapy for unresectable liver tumours: Follow up of 74 cases. *European Association of Nuclear Medicine (EANM) Conference 2009*; Abs. OP374.
- Pitton MB, Eichhorn W, Schreckenberger M *et al.* Selective internal radiation therapy (SIRT): technical remarks and first clinical results. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2009*; Abs. P-280.
- Alonso-Burgos A, Iñarrairaegui M, Sangro B *et al.* Radioembolisation of liver tumors: determinants of antitumor effect using Y90-labeled resin microspheres *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2008*; Abs. P-74.
- Szyszko T, Brooks A, Khan S *et al.* SIR sphere therapy: update of clinical experience over the last 40 months. *36th Annual Meeting of the British Nuclear Medicine Society 2008*; Abs. 172.
- Zhang Z, Machac, J, Heiba S *et al.* ⁹⁰Y SIR-Spheres treatment of unresectable primary or metastatic hepatic tumors. Radiomicrosphere Therapy: 4th Annual Symposium May 2008 *Journal of Interventional Oncology 2009*; **2**: 94.
- Ruehl R, Seidensticker M, Denecke T *et al.* Selektive interne radioembolisation (SIRT) mit mikrosphären bei extensiven, therapierefraktären, progredienten Lebermalignomen. *Deutsche Gesellschaft für Nuklearmedizin (DGN) 2008*; Abs. [in German]
- Vallow L, Kim S, Hayostek C *et al.* An initial experience of Yttrium-90 microsphere radio-embolization in liver metastasis. *49th Annual Meeting of the American Society for Therapeutic Radiology & Oncology (ASTRO) 2007*; Abs. 2164.
- Szyszko T, Tait P, Khan S *et al.* Yttrium-90 microspheres in liver tumours: effects of extrahepatic disease. *European Association of Nuclear Medicine (EANM) Conference 2007*; Abs. 79.
- Palmedo H, Ezziddin S, Bucerius J *et al.* Selective internal radiotherapy (SIRT) in malignant liver tumors: first clinical results. *European Association of Nuclear Medicine (EANM) Conference 2007*; Abs. 78.
- Bilbao I, Martinez-Cuesta A, Alonso-Burgos A *et al.* Liver radioembolization (RE) with Y⁹⁰ loaded resin microspheres: results in 93 patients in a single institution. *Cardiovascular and Interventional Radiology 2007*; Abs. 1303.3.
- Bilbao JI, Martínez-Cuesta A, Alonso A, Rodríguez J, Arbizu J, Sangro B. Radioembolization with Yttrium-90. *Cardiovascular and Interventional Radiology 2007*; Abstract 1503.2.
- Alonso-Burgos A, Martinez-Cuesta A, Valero M, Arbizu J, Sangro B, Bilbao JI. Radioembolization (RE) with ⁹⁰Yttrium for liver metastases: influence of previous treatments with an antiangiogenic drug (Bevacizumab-Avastin). *Cardiovascular and Interventional Radiology 2007*; Abs. 3003.2.
- Gulec SA, Mesoloras G, Wiarda H *et al.* Y-90 resin microsphere selective internal radiation treatment in primary and metastatic liver cancer: Objective response and therapeutic ratio analysis. *American Hepato-Pancreato-Biliary Association (AHPBA) meeting 2007*; Abs. 62.
- Kennedy A, McNeillie P, Dezarn W *et al.* Factors related to toxicity and response in 680 treatments of resin ⁹⁰Y-microsphere radioembolization in hepatic malignancies. *18th International Congress on Anti-Cancer Treatment 2007*; Abs. 298.
- Cianni R, Satarelli A, Notarianni E *et al.* Radioembolism (Yttrium-90) of hepatic liver metastases. A preliminary experience. *Cardiovascular and Interventional Radiology 2006*. Abs. 49.1.9.
- Jakobs T, Hoffmann R, Yu M *et al.* Yttrium-90 (SIR-Spheres®) treatment for metastatic cancer to the liver: midterm result. *World Conference on Interventional Oncology (WCIO) meeting 2006*; Session L1.
- Wang S, Ho Y, Leung F *et al.* Outcomes following selective internal radiation therapy with SIR-Spheres in non-resectable hepatic malignancy. *World Conference on Interventional Oncology (WCIO) meeting 2006*; Abs. 8145.
- Janssen J, Quinn R, Morris D *et al.* Clinical side effects associated with the administration of Y⁹⁰ SIR-Spheres. *36th Annual Scientific Meeting of the Australian and New Zealand Society of Nuclear Medicine April 2006*; Abs. 53.
- Yu M, Lewandowski RJ, Wong CO *et al.* Yttrium-90 (SIR-Spheres®) treatment for metastatic cancer to the liver: midterm results. *Society of Interventional Radiology (SIR) Conference March 2006*; Abs. 17.
- Boán J, Martí-Climent J, Martínez-Cuesta A *et al.* Selective internal radiation therapy of primary or metastatic hepatic tumors with Yttrium-90 microspheres. *European Association of Nuclear Medicine (EANM) Conference 2005*; Abs. 295.
- Bailey W, Little A, Lim L *et al.* Yttrium-90 microsphere hepatic artery embolization in the treatment of non-resectable hepatic malignancy. *Australasian Radiology 2004*; **48** (2): Abs. A4.

Bester L, Driver N, Hodges C. Targeted arterial chemo-embolisation using yttrium-90 SIR-Spheres - Clinical experience. *Clinical Oncology Society of Australia (COSA) meeting 2004*; Abs. O113.

Nutting C, Jones B. Techniques for minimizing complications during yttrium-90 radioembolization of unresectable hepatic malignancies. *Cardiovascular and Interventional Radiology 2004*; **27** (Sup.1): Abs. 9.4.3.

SIR-Spheres microspheres are approved in Australia, the European Union (CE Mark) and several other countries for the treatment of patients with non-operable liver tumours.

The papers and abstracts on this page report pre-clinical and clinical experience using SIR-Spheres microspheres in the treatment of malignancy outside of the liver, which are currently investigational in nature and that have not been approved or cleared by regulatory authorities.

Lung Malignancies

Prospective Studies in Lung Malignancies

Ones T, Eryuksel E, Baltacioglu F *et al.* The effect of selective internal radiation therapy with yttrium-90 resin microspheres on lung carbon monoxide diffusion capacity. *EJNMMI Research* 2017; ePub doi: 10.1186/s13550-017-0353-5.

Retrospective Studies in Lung Malignancies

Großer OS, Amthauer H, Ricke J. General theory of predictive dosimetry for yttrium-90 radioembolization to sites other than the liver: Reply. *Cardiovascular and Interventional Radiology* 2014; **37**: 1120–1121. [Reply to Kao YH. *Cardiovascular and Interventional Radiology* 2014; **37**: 1114–1117.]

Muyllé K, Vanderlinden B. Reply to letter re: General theory of predictive dosimetry for yttrium-90 radioembolization to sites other than the liver. *Cardiovascular and Interventional Radiology* 2014; **37**: 1118–1119. [Comment on Kao YH. *Cardiovascular and Interventional Radiology* 2014; **37**: 1114–1117.]

Kao YH. General theory of predictive dosimetry for yttrium-90 radioembolization to sites other than the liver. *Cardiovascular and Interventional Radiology* 2014; **37**: 1114–1117. [Comment on Ricke J *et al.* *Cardiovascular and Interventional Radiology* 2013; **36**: 1664–1669.]

Ricke J, Großer O, Amthauer H. Y90-radioembolization of lung metastases via the bronchial artery: A report of 2 cases. *Cardiovascular and Interventional Radiology* 2013; **36**: 1664–1669.

Haematological Malignancies

Retrospective Studies in Malignant Lymphomatous Splenomegaly

Muyllé K, Nguyen J, de Wind A *et al.* Radioembolization of the spleen: A revisited approach for the treatment of malignant lymphomatous splenomegaly. *Cardiovascular and Interventional Radiology* 2013; **36**: 1155–1160.

Primary Renal Cancer

Abstracts on Prospective Studies in primary Renal Cell Carcinoma

de Souza P, Aslan P *et al.* Phase 1 study of selective internal radiation therapy (SIRT) with yttrium-90 (Y-90) resin microspheres in patients (pts) with renal cell carcinoma (RCC): RESIRT. *ESMO Congress, Annals of Oncology* 2016; **27** (Suppl 6) Abs: P-803.

Preclinical Studies in Primary Renal Cancer

Mackie S, de Silva S, Aslan P *et al.* Super selective radio embolization of the porcine kidney with ⁹⁰yttrium resin microspheres: a feasibility, safety and dose ranging study. *Journal of Urology* 2011; **185**: 285–290.

Prostate cancer

Retrospective studies in prostate cancer

Bunck AC, Pinto dos Santos D, Chang DH *et al.* Successful yttrium-90 microsphere radioembolization for hepatic metastases of prostate cancer. *Case Reports in Oncology* 2017; **10**: 627-633; ePub doi: 10.1159/00047800.

Consensus Statements / Guidelines

Colorectal Cancer Guidelines

Boas FE, Bodei L, Sofocleous CT *et al.* Radioembolization of colorectal liver metastases: Indications, techniques, and outcomes. *J Nucl Med* 2017; **58** (Suppl 2): 104S–111S.

Aranda E, Aparicio J, Bilbao JI *et al.* Recommendations for SIR-Spheres Y-90 resin microspheres in chemotherapy-refractory/intolerant colorectal liver metastases. *Future Oncology* 2017; **13** (23): 2065–2082.

Salvatore L, Aprile G, Arnoldi E *et al.* Management of metastatic colorectal cancer patients: Guidelines of the Italian Medical Oncology Association (AIOM). *ESMO Open* 2017 Apr 13; ePub doi:10.1136/esmoopen-2016-000147.

National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology. Colon Cancer. Version 1.2017 www.nccn.org/professionals/physician_gls/PDF/colon.pdf

National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology. Rectal Cancer. Version 1.2017. www.nccn.org/professionals/physician_gls/PDF/rectal.pdf

Van Cutsem E, Cervantes A, Adam R, *et al.* ESMO consensus guidelines for the management of patients with metastatic colorectal cancer. *Annals of Oncology* 2016; **27**: 1386–1422.

d'Othée BJ, Sofocleous CT, Hanna N *et al.* Development of a research agenda for the management of metastatic colorectal cancer: Proceedings from a multidisciplinary research consensus panel. *Journal of Vascular and Interventional Radiology* 2012; **23**: 153–163.

National Institute for Health and Clinical Excellence (NICE). Selective internal radiation therapy for non-resectable colorectal metastases in the liver. 2011 Jul 27; IPG 401.

Hepatocellular Carcinoma Guidelines

Taiwan Liver Cancer Association and the Gastroenterological Society of Taiwan *et al.* Management consensus guideline for hepatocellular carcinoma: 2016 updated by the Taiwan Liver Cancer Association and the Gastroenterological Society of Taiwan. *J Formos Med Assoc* 2018; **117** (5): 381–403.

European Association for the Study of the Liver. EASL Clinical Practice Guidelines: Management of hepatocellular carcinoma. *J Hepatol* 2018 Apr 5. ePub doi: 10.1016/j.jhep.2018.03.019.

National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology. Hepatobiliary guidelines. Version 2. 2016. www.nccn.org/professionals/physician_gls/PDF/hepatobiliary.pdf

Park HC, Yu JI, Cheng JC *et al.* Consensus for radiotherapy in hepatocellular carcinoma from the 5th Asia-Pacific Primary Liver Cancer Expert Meeting (APPLE 2014): Current practice and future clinical trials. *Liver Cancer* 2016; **5**: 162–174.

National Institute for Health and Clinical Excellence (NICE). Selective internal radiation therapy for primary hepatocellular carcinoma. 2013 July; IPG 460.

Verslype C, Rosmorduc O, Rougier P *et al.* Hepatocellular carcinoma: ESMO–ESDO clinical practice guidelines for diagnosis, treatment and follow-up. *Annals of Oncology* 2012; **23** (Suppl 7): vii41–vii48, European Association for the Study of the Liver, European Organisation for Research and Treatment of Cancer. EASL–EORTC clinical practice guidelines: Management of hepatocellular carcinoma”. *Journal of Hepatology* 2012; **56**: 908–943.

European Association for the Study of the Liver, European Organisation for Research and Treatment of Cancer. *Journal of Hepatology* 2012; **56**: 1430. [Erratum to “EASL–EORTC clinical practice guidelines: Management of hepatocellular carcinoma”. *Journal of Hepatology* 2012; **56**: 908–943].

Bruix J, Sherman M. Management of hepatocellular carcinoma: an update. *Hepatology* 2011; **53**: 1020–1022.

Ferenci P, Fried M, Labrecque D *et al.* World Gastroenterology Organisation Guideline. Hepatocellular carcinoma (HCC): a global perspective. *Journal of Gastrointestinal and Liver Diseases* 2010; **19**: 311–317 and *Journal of Clinical Gastroenterology* 2010; **44**: 239–245.

Thomas MB, Jaffe D, Choti MM *et al.* Hepatocellular carcinoma: consensus recommendations of the national cancer institute clinical trials planning meeting. *Journal of Clinical Oncology* 2010; **28**: 3994–4005.

Jelic S, Sotiropoulos GC on behalf of the ESMO Guidelines Working Group. Hepatocellular carcinoma: ESMO clinical recommendations for diagnosis, treatment and follow-up. *Annals of Oncology* 2010; **21** (Suppl 5): v59–64.

Dixon E, Abdalla E, Schwarz RE, Vauthey JN. AHPBA/SSO/SSAT Sponsored Consensus Conference on Multidisciplinary Treatment of Hepatocellular Carcinoma. *HPB* 2010; **12**: 287–288.

Schwarz RE, Abou-Alfa GK, Geschwind JF *et al.* Nonoperative therapies for combined modality treatment of hepatocellular cancer: expert consensus statement. *HPB* 2010; **12**: 313–320.

Burak KW, Thomas MB, Zhu AX. Nonoperative therapies for combined modality treatment of hepatocellular cancer: expert consensus conference. *HPB* 2010; **12**: 321–322.

Neuroendocrine Tumour Guidelines

Pavel M, O'Toole D, Costa F *et al.* ENETS consensus guidelines update for the management of distant metastatic disease of intestinal, pancreatic, bronchial neuroendocrine neoplasms (NEN) and NEN of unknown primary site. *Neuroendocrinology* 2016; **103**: 172–185; ePub doi: 10.1159/000443167.

Kennedy A, Bester L, Salem R *et al.* Role of hepatic intra-arterial therapies in metastatic neuroendocrine tumours (NET): Guidelines from the NET-liver-metastases consensus conference. *HPB (Oxford)* 2015; **17**: 29–37.

National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology. Neuroendocrine tumors. Version 2.2016. http://www.nccn.org/professionals/physician_gls/PDF/neuroendocrine.pdf

Öberg K, Knigge U, Kwekkeboom D *et al.* Neuroendocrine gastro-entero-pancreatic tumors: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. *Annals of Oncology* 2012; **23** (Suppl 7): vii124–vii130.

Kulke MH, Siu LL, Tepper JE. Future directions in the treatment of neuroendocrine tumors: Consensus report of the National Cancer Institute Neuroendocrine Tumor Clinical Trials Planning Meeting. *Journal of Clinical Oncology* 2011; **29**: 934–943.

Kulke MH, Anthony L, Bushnell DL *et al.* NANETS treatment guidelines: well-differentiated neuroendocrine tumors of the stomach and pancreas. *Pancreas* 2010; **39**: 735–752.

Boudreaux JP, Klimstra DS, Hassan MM *et al.* The NANETS consensus guideline for the diagnosis and management of neuroendocrine tumors: well-differentiated neuroendocrine tumors of the jejunum, ileum, appendix, and cecum. *Pancreas* 2010; **39**: 753–766.

Phan AT, Öberg K, Choi J *et al.* NANETS consensus guideline for the diagnosis and management of neuroendocrine tumors: well-differentiated neuroendocrine tumors of the thorax (includes lung and thymus). *Pancreas* 2010; **39**: 784–798.

Vinik AI, Anthony L, Boudreaux JP *et al.* Neuroendocrine tumors: a critical appraisal of management strategies. *Pancreas* 2010; **39**: 801–818.

Cholangiocarcinoma

Valle JW, Borbath I, Khan SA *et al.* Biliary cancer: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. *Annals of Oncology* 2016; **27**: v28–v37.

National Institute for Health and Clinical Excellence (NICE). Selective internal radiation therapy for primary intrahepatic cholangiocarcinoma. 2013 July; IPG 459.

General Consensus Statements / Guidelines

Samim M, van Veenendaal LM, Braat MNGJA *et al.* Recommendations for radioembolisation after liver surgery using yttrium-90 resin microspheres based on a survey of an international expert panel. *Eur Radiol* 2017; **27** (12): 4923–4930.

Bilbao JL, Iezzi R, Goldberg SN *et al.* The ten commandments of hepatic radioembolization: expert discussion and report from Mediterranean Interventional Oncology (MIOLive) congress 2017. *Eur Rev Med Pharmacol Sci* 2017; **21** (18): 4014–4021.

Kennedy A, Brown DB, Feilchenfeldt J *et al.* Safety of selective internal radiation therapy (SIRT) with yttrium-90 microspheres combined with systemic anticancer agents: expert consensus. *Journal of Gastrointestinal Oncology* 2017; **8**(6): 1079-1099.

Kouri BE, Abrams RA, Al-Refaie WB *et al.* ACR appropriateness criteria radiologic management of hepatic malignancy. *Journal of the American College of Radiology* 2016; **13**: 265–273.

American College of Radiology. ACR–SIR practice parameter for radioembolization with microsphere brachytherapy device (RMBD) for treatment of liver malignancies. *Practice Parameters & Technical Standards* 2014; Resolution 17.

<http://www.acr.org/~media/ACR/Documents/PGTS/guidelines/RMBD.pdf>

Dezarn WA, Cessna JT, DeWerd LA *et al.* Recommendations of the American Association of Physicists in Medicine on dosimetry, imaging, and quality assurance procedures for ⁹⁰Y microsphere brachytherapy in the treatment of hepatic malignancies. *Medical Physics* 2011; **38**: 4824–4845.

Giammarile F, Bodei L, Chiesa C *et al.* EANM procedure guideline for the treatment of liver cancer and liver metastases with intra-arterial radioactive compounds. *European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38**: 1393–1406.

Canadian Agency for Drugs and Technologies in Health (CADTH). Yttrium-90 microspheres for cancer patients with primary or secondary liver tumors: clinical and cost-effectiveness. CADTH 13 June 2011: http://www.cadth.ca/media/pdf/htis/june-2011/RB0369_Yttrium-90_Microspheres_Final.pdf

Salem R, Lewandowski RJ, Gates VL *et al.* Research reporting standards for radioembolization of hepatic malignancies. *Journal of Vascular and Interventional Radiology* 2011; **22**: 265–278.

Fong Y, Wasan H, Leung TWT *et al.* Integration of radiomicrosphere therapy into the contemporary management strategies for primary and metastatic liver cancer: Oncology expert opinions and recommendations. *Journal of Interventional Oncology* 2009; **2**: 46–58.

American College of Radiology (ACR), American Society for Therapeutic Radiology and Oncology (ASTRO), and the Society of Interventional Radiology (SIR). Practice guideline for radioembolization with microsphere brachytherapy device (RMBD) for treatment of liver malignancies. 2008; Res. 2: http://www.acr.org/SecondaryMainMenuCategories/quality_safety/guidelines/iv/RMBD.aspx

Kennedy A, Nag S, Salem R *et al.* Recommendations for radioembolization of hepatic malignancies using yttrium-90 microsphere brachytherapy: A consensus panel report from the Radioembolization Brachytherapy Oncology Consortium (REBOC). *International Journal of Radiation Oncology, Biology and Physics* 2007; **68**: 13–23.

Kennedy A. ⁹⁰Y-microsphere liver brachytherapy for primary or metastatic tumors. In: 2006 ACRO Practice Management Guide: *American College of Radiation Oncology* 2006; 349–359.

Review Articles

Colorectal Cancer

- Boas FE, Bodei L, Sofocleous *et al.* Radioembolization of colorectal liver metastases : Indications, techniques, and outcomes. *J Nucl Med* 2017 : **58** (Suppl 2) : 104S–111S.
- de Baere T, Tselikas L, Yevich S *et al.* The role of image-guided therapy in the management of colorectal cancer metastatic disease. *Eur J Cancer* 2017; **75**: 231–242.
- Schmoll HJ. Selective internal radiotherapy in advanced colorectal cancer: only for right-sided tumours? *Lancet Onc* 2017; **18** (9) : ePub doi: 10.1016/S1470-2045(17)30589-2.
- Aranda E, Aparicio J, Bilbao JI *et al.* Recommendations for SIR-Spheres Y-90 resin microspheres in chemotherapy-refractory/intolerant colorectal liver metastases. *Future Oncology*.2017; **13** (23): 2065–2082.
- Fiorentini G, Sarti D, Aliberti C *et al.* Multidisciplinary approach of colorectal cancer liver metastases. *World Journal of Clinical Oncology* 2017; **8**: 190–202.
- Marsala A, Lee EW, Padia SA. Yttrium-90 radioembolization for metastatic colorectal cancer: Outcomes by number of lines of therapy. *Seminars in Interventional Radiology* 2017; **34**: 116–120.
- Fairchild AH, White SB. Decision making in interventional oncology: Intra-arterial therapies for metastatic colorectal cancer-Y90 and chemoembolization. *Seminars in Interventional Radiology* 2017; **34**: 87–91.
- Gui B, Weiner AA, Noshier J *et al.* Assessment of the albumin-bilirubin (ALBI) grade as a prognostic indicator for hepatocellular carcinoma patients treated with radioembolization. *American Journal of Clinical Oncology* 2017 Apr 17; ePub doi: 10.1097/COC.0000000000000384.
- Kingsbury JM, Clark MR, Grammer RW *et al.* Radioembolization of hepatic malignancies: Evolving practice guidelines, techniques, and applications. *Journal of Cancer Prevention & Current Research* 2017 Apr 6; ePub doi: 10.15406/jcpcr.2017.07.00255.
- Mocellin S, Baretta Z, Roqué I Figuls M *et al.* Second-line systemic therapy for metastatic colorectal cancer. *Chochrane Database Systematic Reviews* 2017 Jan 27; ePub doi: 10.1002/14651858.CD006875.pub3.
- Elias D, Viganò L, Orsi F *et al.* New perspectives in the treatment of colorectal metastases. *Liver Cancer* 2016; **6**: 90–98.
- Zampino MG, Magni E, Ravenda PS *et al.* Treatments for colorectal liver metastases: A new focus on a familiar concept. *Critical Reviews in Oncology/Hematology* 2016; **108**: 154–163.
- Shi Y and Zhai B. A recent advance in image-guided locoregional therapy for hepatocellular carcinoma. *Gastrointestinal Tumors* 2016; **3**: 90–102.
- Kallini JR, Gabr A, Abouchaleh N *et al.* New developments in interventional oncology: Liver metastases from colorectal cancer. *The Cancer Journal* 2016; **22**: 373–380.
- Şendur MA, Bilgin B, Akıncı MB *et al.* Selective internal radiation therapy in untreated patients with unresectable liver dominant metastatic colorectal cancer. *Future Oncology* 2016 Sep 20; ePub doi: 10.2217/fo-2016-0276.
- Shiao J, Winter H, Sharma R. Landmark study raises the bar for interventional oncology. *Future Oncology* 2016; **12**: 1747–1749. [Editorial on: van Hazel GA, Heinemann V, Sharma NK *et al.* SIRFLOX: Randomized phase III trial comparing first-line mFOLFOX6 (plus or minus bevacizumab) versus mFOLFOX6 (plus or minus bevacizumab) plus selective internal radiation therapy in patients with metastatic colorectal cancer. *Journal of Clinical Oncology* 2016; **34**: 1723–1731]
- Gruber-Rouh T, Marko C, Thalhammer A *et al.* Current strategies in interventional oncology of colorectal liver metastases. *The British Journal of Radiology* 2016 May 6; ePub doi: 10.1259/bjr.20151060.
- Sangha BS, Nimeiri H, Hickey R *et al.* Radioembolization as a treatment strategy for metastatic colorectal cancer to the liver: What can we learn from the SIRFLOX trial? *Current Treatment Options in Oncology* 2016; **17**: 26: .
- Cho M, Gong J, Fakhri M. The state of regional therapy in the management of metastatic colorectal cancer to the liver. *Expert Review of Anticancer Therapy* 2016; **13**: 1–17.
- Kennedy AS. The role of radioembolization in colorectal cancer treatment. *Expert Review of Anticancer Therapy* 2016; **16**: 375–376.

- Gulec SA. Y-90 radiomicrosphere therapy for colorectal cancer liver metastases. *Seminars in Nuclear Medicine* 2016; **46**: 126–134.
- Puippe G, Pfammatter T, Schaefer N. Arterial therapies of non-colorectal liver metastases. *Viszeralmedizin* 2015; **31**: 414–422.
- Vogl TJ, Emam A, Naguib NN *et al.* How effective are percutaneous liver-directed therapies in patients with non-colorectal liver metastases? *Viszeralmedizin* 2015; **31**: 406–413.
- De Groote K, Prenen H. Intrahepatic therapy for liver-dominant metastatic colorectal cancer. *World Journal of Gastrointestinal Oncology* 2015; **7**: 148–152.
- Petre EN, Sofocleous CT, Solomon SB. Ablative and catheter-directed therapies for colorectal liver and lung metastases. *Hematology/Oncology Clinics of North America* 2015; **29**: 117–133.
- Hickey R, Lewandowski R, Salem R. Yttrium-90 radioembolization is a viable treatment option for unresectable, chemorefractory colorectal cancer liver metastases: Further evidence in support of a new treatment paradigm. *Annals of Surgical Oncology* 2015; **22**: 706–707.
- Sharma RA, Peeters M, Taïeb J. Case histories in unresectable liver-dominant metastatic colorectal cancer. *Future Oncology* 2014; **10** (Suppl): 41–47.
- Heinemann V. Ongoing selective internal radiation therapy-based studies in the treatment of liver-dominant metastatic colorectal cancer. *Future Oncology* 2014; **10** (Suppl): 37–39.
- Wasan HS. Evidence-based integration of selective internal radiation therapy in the management of colorectal liver metastases. *Future Oncology* 2014; **10** (Suppl): 33–36.
- Sobrero A, Pastorino A. State of the art: colorectal liver metastases. *Future Oncology* 2014; **10** (Suppl): 29–32.
- Gibbs P, Tie J, Bester L. Radioembolization for colorectal cancer liver metastases: current role and future opportunities – the medical oncologist’s perspective. *Colorectal Cancer* 2014; **3**: 345–362.
- Fakih M. SIR-Spheres radioembolization in the management of metastatic colorectal cancer: a medical oncology perspective. *Colorectal Cancer* 2014; **3**: 331–343.
- Clark ME, Smith RR. Liver-directed therapies in metastatic colorectal cancer. *Journal of Gastrointestinal Oncology* 2014; **5**: 374–387.
- Raval M, Bande D, Pillai A *et al.* Yttrium-90 radioembolization of hepatic metastases from colorectal cancer. *Frontiers in Oncology* 2014; **4**: 120.
- Annunziata S, Treglia G, Caldarella C, Galiandro F. The role of 18F-FDG-PET and PET/CT in patients with colorectal liver metastases undergoing selective internal radiation therapy with yttrium-90: A first evidence-based review. *The Scientific World Journal* 2014; **2014**: 879469.
- Bester L, Meteling B, Boshell *et al.* Current role of transarterial chemoembolization and radioembolization in the treatment of metastatic colorectal cancer. *Hepatic Oncology* 2014; **1**: 215–228.
- Saxena A, Bester L, Shan L *et al.* A systematic review on the safety and efficacy of yttrium-90 radioembolization for unresectable, chemorefractory colorectal cancer liver metastases. *Journal of Cancer Research Clinical Oncology* 2014; **140**: 537–547.
- Foubert F, Matysiak-Budnik T, Touchefeu Y. Options for metastatic colorectal cancer beyond the second line of treatment. *Digestive and Liver Disease* 2014; **46**: 105–112.
- Martin RC, Salem R, Adam R, Dixon E. Locoregional surgical and interventional therapies for advanced colorectal liver metastasis: Expert consensus statement. *HPB (Oxford)* 2013; **15**: 131–133.
- Wang DS, Louie JD, Sze DY. Intra-arterial therapies for metastatic colorectal cancer. *Seminars in Interventional Radiology* 2013; **30**: 12–20.
- Hipps D, Ausania F, Manas DM *et al.* Selective interarterial radiation therapy (SIRT) in colorectal liver metastases: How do we monitor response? *HPB Surgery* 2013; **2013**: 570808.
- Rosenbaum CE, Verkooijen HM, Lam MG *et al.* Radioembolization for treatment of salvage patients with colorectal cancer liver metastases: A systematic review. *Journal of Nuclear Medicine* 2013; **54**: 1890–1895.
- Damm R, Seidensticker R, Ricke J, Seidensticker M. [Interventional radiological procedures in the therapy for colorectal liver metastases]. *Zentralblatt für Chirurgie* 2013; **138**: 76–83. [in German]
- Seront E, Van den Eynde M. Liver-directed therapies: Does it make sense in the current therapeutic strategy for patients with confined liver colorectal metastases? *Clinical Colorectal Cancer* 2012; **11**: 177–184.

- Sharma R. Synergy of yttrium-90 microspheres therapy with radiosensitising chemotherapy. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 4–6.
- Van Cutsem E. Progress in the management of chemorefractory colorectal cancer. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 7–9.
- Wasan H. Selective internal radiation therapy first-line therapy – SIRFLOX and FOXFIRE. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 12–14.
- Peeters M. Future directions for selective internal radiation therapy in colorectal cancer. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 15–17.
- Alberts SR. Update on the optimal management of patients with colorectal liver metastases. *Critical Reviews in Oncology Hematology* 2012; **84**: 59–70.
- Wasan H, Kennedy A, Coldwell D *et al*. Integrating radioembolization with chemotherapy in the treatment paradigm for unresectable colorectal liver metastases. *American Journal of Clinical Oncology* 2012; **35**: 293–301.
- Cosimelli M, Mancini R, Carpanese L *et al*. Integration of radioembolisation into multimodal treatment of liver-dominant metastatic colorectal cancer. *Expert Opinion on Therapeutic Targets* 2012; **16**: S11–S16.
- Haddad AJ, Bani Hani M *et al*. Colorectal liver metastases. *International Journal of Surgical Oncology* 2011; **2011**: 285840.
- Meyer JE, Cohen SJ. Beyond first-line therapy: combining chemotherapy and radioembolization for hepatic colorectal metastases. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 103.
- Hill EJ, Sharma RA. Multi-modality therapy of hepatic metastases from colorectal carcinoma: optimal combination of systemic chemotherapy with radio-embolization. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 108.
- de Baere T, Deschamps F. Arterial therapies of colorectal cancer metastases to the liver. *Abdominal Imaging* 2011; **36**: 661–670.
- Boutros C, Espat NJ. What, how, and when to offer nonresectional therapy for colorectal cancer liver metastases. *Journal of Gastrointestinal Surgery* 2011; **15**: 420–422.
- Eadens MJ, Grothey A. Curable metastatic colorectal cancer. *Current Oncology Reports* 2011; **13**: 168–176.
- Kobayashi A, Miyagawa S. Advances in therapeutics for liver metastasis from colorectal cancer. *World Journal of Gastrointestinal Oncology* 2010; **2**: 380–389.
- Nicolay NH, Berry DP, Sharma RA. Author reply: Radioembolization for colorectal liver metastases. *Nature Reviews Clinical Oncology* 2010; **7**: ePub doi:10.1038/nrclinonc.2009.165-c2. [reply to Vente MA *et al*. *Nature Reviews Clinical Oncology* 2010; **7**: ePub doi: 10.1038/nrclinonc.2009.165-c1.]
- Vente MA, van den Bosch MA, Lam MG, Nijsen JF. Radioembolization for colorectal liver metastases. *Nature Reviews Clinical Oncology* 2010; **7**: ePub doi: 10.1038/nrclinonc.2009.165-c1. [Comment on: Nicolay NH *et al*. *Nature Reviews Clinical Oncology* 2009; **6**: 687–697.]
- Pwint TP, Midgley R, Kerr DJ. Regional hepatic chemotherapies in the treatment of colorectal cancer metastases to the liver. *Seminars in Oncology* 2010; **37**: 149–159.
- Abdel-Misih SR, Schmidt CR, Bloomston PM. Update and review of the multidisciplinary management of stage IV colorectal cancer with liver metastases. *World Journal of Surgical Oncology* 2009; **7**: 72.
- Nicolay NH, Berry DP, Sharma RA. Liver metastases from colorectal cancer: radioembolization with systemic therapy. *Nature Reviews Clinical Oncology* 2009; **6**: 687–697.
- Townsend A, Price T, Karapetis C. Selective internal radiation therapy for liver metastases from colorectal cancer (Review). *Cochrane Database of Systematic Reviews* 2009 Oct 7;(4):CD007045.
- Kuebler JP. Radioembolization of liver metastases in patients with colorectal cancer: A nonsurgical treatment with combined modality potential. *Journal of Clinical Oncology* 2009; **27**: 4041–4042.
- Stuart K. Liver-directed therapies for colorectal metastases. *Seminars in Colon & Rectal Surgery* 2008; **19**: 207–215.

- Paschos KA, Bird NC. Current diagnostic and therapeutic approaches for colorectal cancer liver metastasis. *Hippokratia* 2008; **12**: 132–138.
- Wasan H. The emerging synergy between radioembolisation, systemic chemotherapy and liver surgery in metastatic colorectal cancer. *European Oncological Disease* 2007; **1**: 54–58.
- Gulec SA, Fong Y. Yttrium 90 microsphere selective internal radiation treatment of hepatic colorectal metastases. *Archives of Surgery* 2007; **142**: 675–682.
- Khatri VP, Cheeb KG, Petrellic NJ. Modern multimodality approach to hepatic colorectal metastases: Solutions and controversies. *Surgical Oncology* 2007; **16**: 71–83.
- Ryan D. Nonsurgical approaches to colorectal cancer. *The Oncologist* 2006; **11**: 999–1002.
- Welsh JS, Kennedy AS, Thomadsen B. Selective internal radiation therapy (SIRT) for liver metastases secondary to colorectal adenocarcinoma. *International Journal of Radiation Oncology, Biology and Physics* 2006; **66** (2 Suppl. S): S62–S73.
- Morris D. Selective internal radiation therapy with ⁹⁰Y-microspheres for colorectal liver metastases: cart before the horse or otherwise? *ANZ Journal of Surgery* 2006; **76**: 675.
- Hendlisz A, Personeni N, Delaunoy T *et al.* Hepatic intra-arterial injection of yttrium-loaded microspheres for liver metastasis secondary to colorectal cancer: best soups are sometimes made from old recipes. *Acta Gastroenterologica Belgica* 2006; **69**: 55–58.
- Liu L, Zhang W, Jiang H. Current treatment for liver metastases from colorectal cancer. *World Journal of Gastroenterology* 2003; **9**: 193–200.

Hepatocellular Carcinoma

- Contratto M, Wu J. Targeted therapy or immunotherapy? Optimal treatment in hepatocellular carcinoma. *World J Gastrointest Oncol* 2018; **10** (5): 108–114.
- Sposito C, Spreafico C, Mazzaferro V. Reply to: "Validation of response to yttrium-90 radioembolization for hepatocellular carcinoma with portal vein invasion". *J Hepatol* 2018 Apr 27; ePub doi: 10.1016/j.jhep.2018.04.008.
- Toskich B, Patel T. Radioembolization for hepatocellular carcinoma: The time has come. *Hepatology* 2018; **67** (3): 820–822.
- Forner A, Reig M, Bruix J. Hepatocellular carcinoma. *Lancet* 2018; **391** (10127): 1301–1314.
- Daher S, Massarwa M, Benson AA *et al.* Current and Future Treatment of Hepatocellular Carcinoma: An Updated Comprehensive Review. *J Clin Transl Hepatol* 2018; **6** (1): 69–78.
- Venkatanarasimha N, Gogna A, Tong KTA *et al.* Radioembolisation of hepatocellular carcinoma: a primer. *Clin Radiol* 2017 Dec; **72** (12): 1002–1013.
- Chow PK, Gandhi M, GebSKI V. The SIRveNIB and SARA trials and the role of SIR-Spheres® Y-90 resin microspheres in the management of hepatocellular carcinoma. *Future Oncol* 2017; **13** (25): 2213–2216.
- Kaseb AO. Grant, deny or reassess the role of yttrium-90 in hepatocellular carcinoma? *Lancet Oncol* 2017; **18** (12): 1560–1561.
- Wang EA, Stein, JP, Bellavia RJ *et al.* Treatment options for unresectable HCC with a focus on SIRT with Yttrium-90 resin microspheres. *Int J Clin Pract* 2017; **71** (11). ePub doi: 10.1111/ijcp.12972.
- Wang EA, Broadwell SR, Bellavia RJ *et al.* Selective internal radiation therapy with SIR-Spheres in hepatocellular carcinoma and cholangiocarcinoma. *J Gastrointest Oncol* 2017; **8** (2): 266–278.
- Güney İB. HCC locoregional therapies: Yttrium-90 (Y-90) selective internal radiation therapy (SIRT). *Journal of Gastrointestinal Cancer* 2017 Jun 21; ePub doi: 10.1007/s12029-017-9973-2.
- Rich NE, Yopp AC, Singal AG. Medical management of hepatocellular carcinoma. *Journal of Oncology Practice* 2017; **13**: 356–364.
- Eggert T, Greten TF. Current standard and future perspectives in non-surgical therapy for hepatocellular carcinoma. *Digestion* 2017; **96**: 1–4.
- White SB, Rilling WS. Management of advanced and terminal hepatocellular carcinoma: When and how to treat, and when not to treat? *Digestive Disease Interventions* 2017 Jun 5; ePub doi: 10.1055/s-0037-1603563.
- Titano J, Noor A, Kim E. Transarterial chemoembolization and radioembolization across Barcelona clinic liver cancer stages. *Seminars in Interventional Radiology* 2017; **34**: 109–115.

- Allaire M, Nault JC. Advances in management of hepatocellular carcinoma. *Current Opinion in Oncology* 2017 May 15; ePub doi: 10.1097/CCO.0000000000000378.
- Kim HC. Radioembolization for the treatment of hepatocellular carcinoma. *Clinical and Molecular Hepatology* 2017 May 10; ePub doi: 10.3350/cmh.2017.0004.
- Wang EA, Broadwell SR, Bellavia RJ, Stein JP. Selective internal radiation therapy with SIR-Spheres in hepatocellular carcinoma and cholangiocarcinoma. *Journal of Gastrointestinal Oncology* 2017; **8**: 266–278.
- Gbolahan OB, Schacht MA, Beckley EW *et al.* Locoregional and systemic therapy for hepatocellular carcinoma. *Journal of Gastrointestinal Oncology* 2017; **8**: 2015–228.
- Mokdad AA, Hester CA, Singal AG, Yopp AC. Management of hepatocellular in the United States. *Chinese Clinical Oncology*; **6**: 21.
- Kishore S, Friedman T, Madoff DC. Update on embolization therapies for hepatocellular carcinoma. *Current Oncology Reports* 2017; **19**: 40.
- Kingsbury JM, Clark MR, Grammer RW *et al.* Radioembolization of hepatic malignancies: Evolving practice guidelines, techniques, and applications. *Journal of Cancer Prevention & Current Research* 2017 Apr 6; ePub doi: 10.15406/jcpcr.2017.07.00255.
- Galle PR, Tovoli F, Foerster F *et al.* The treatment of intermediate stage tumour beyond TACE: from surgery to systemic therapy. *Journal of Hepatology* 2017 Mar 17; ePub doi: 10.1016/j.jhep.2017.03.007.
- Bruix J, Han KH, Gores G *et al.* Liver cancer: Approaching a personalized care. *Journal of Hepatology* 2015; **62**: 144-156.
- Pesapane F, Nezami N, Patella F, Geschwind JF. New concepts in embolotherapy of HCC. *Medical Oncology* 2017; **34**: 58.
- Lu WP, Dong JH. Hepatectomy for hepatocellular carcinoma in the era of liver transplantation. *World Journal of Gastroenterology* 2014; **20**: 9237-9244.
- Magistri P, Tarantino G, Ballarin R *et al.* The evolving role of local treatments for HCC in the third millennium. *Anticancer Research* 2017; **37**: 389–401.
- Sun JX, Shi J, Li N *et al.* Portal vein tumor thrombus is a bottleneck in the treatment of hepatocellular carcinoma. *Cancer Biology & Medicine* 2016; **13**: 452–458.
- Hsieh TC, Wu YC, Sun SS *et al.* Treating hepatocellular carcinoma with ⁹⁰Y-bearing microspheres: A review. *BioMedicine* 2016 Nov 6; ePub doi: 10.7603/s40681-016-0019-z.
- Kim DY, Han KH. Transarterial chemoembolization versus transarterial radioembolization in hepatocellular carcinoma: optimization of selecting treatment modality. *Hepatology International* 2016 Apr 28; ePub doi: 10.1007/s12072-016-9722-9.
- Jia Z, Jiang G, Tian F *et al.* A systematic review on the safety and effectiveness of yttrium-90 radioembolization for hepatocellular carcinoma with portal vein tumor thrombosis. *The Saudi Journal of Gastroenterology* 2016; **22**: 353–359.
- Abdelsalam ME, Murthy R, Avritscher R *et al.* Minimally invasive image-guided therapies for hepatocellular carcinoma. *Journal of Hepatocellular Carcinoma* 2016; **11**: 55–61.
- Cucchetti A, Cappelli A, Ercolani G *et al.* Selective Internal Radiation Therapy (SIRT) as conversion therapy for unresectable primary liver malignancies. *Liver Cancer* 2016; **5**: 303–311.
- Sacco R, Conte C, Tumino E *et al.* Transarterial radioembolization for hepatocellular carcinoma: A review. *Journal of Hepatocellular Carcinoma* 2016; **3**: 25–29.
- Byrne TJ, Rakela J. Loco-regional therapies for patients with hepatocellular carcinoma awaiting liver transplantation: Selecting an optimal therapy. *World Journal of Transplantation* 2016; **6**: 306–313.
- Facciorusso A, Serviddio G, Muscatiello N. Transarterial radioembolization vs chemoembolization for hepatocarcinoma patients: A systematic review and meta-analysis. *World Journal of Hepatology* 2016; **28**: 770–778.
- Kallini JR, Gabr A, Salem R *et al.* Transarterial radioembolization with yttrium-90 for the treatment of hepatocellular carcinoma. *Advances in Therapy* 2016; **33**: 699–714: Apr 2; ePub doi: 10.1007/s12325-016-0324-7.
- Han K, Kim JH, Ko GY *et al.* Treatment of hepatocellular carcinoma with portal venous tumor thrombosis: A comprehensive review. *World Journal of Gastroenterology* 2016; **22**: 407–416.

- Mokdad AA, Singal AG, Yopp AC. Advances in local and systemic therapies for hepatocellular cancer. *Current Oncology Reports* 2016; **18**: 1–12.
- Abdel-Rahman OM, Elsayed Z. Yttrium-90 microsphere radioembolisation for unresectable hepatocellular carcinoma. *The Cochrane Database of Systematic Reviews* 2016 Feb 16; ePub doi: 10.1002/14651858.CD011313.pub2.
- Hickey RM, Lewandowski RJ, Salem R. Yttrium-90 radioembolization for hepatocellular carcinoma. *Seminars in Nuclear Medicine* 2016; **46**: 105–108.
- Kumar Y, Sharma P, Bhatt N, Hooda K. Transarterial therapies for hepatocellular carcinoma: a comprehensive review with current updates and future directions. *Asian Pacific Journal of Cancer Prevention* 2016; **17**: 473–478.
- Molvar C, Lewandowski R. Yttrium-90 radioembolization of hepatocellular carcinoma—performance, technical advances, and future concepts. *Seminars in Interventional Radiology* 2015; **4**: 388–397.
- Marin D, Cappabianca S, Serra N *et al.* CT appearance of hepatocellular carcinoma after locoregional treatments: A comprehensive review. *Gastroenterology Research and Practice* 2015; **2015**: 670965.
- Chegai F, Orlicchio A, Merolla S *et al.* Intermediate hepatocellular carcinoma: The role of transarterial therapy. *Hepatic Oncology* 2015; **4**: 399–408.
- Colombo GL, Cammà C, Attili AF *et al.* Patterns of treatment and costs of intermediate and advanced hepatocellular carcinoma management in four Italian centers. *Journal of Therapeutics and Clinical Risk Management* 2015; **11**: 1603–1612.
- Bellissimo F, Pinzone MR, Cacopardo B, Nunnari G. Diagnostic and therapeutic management of hepatocellular carcinoma. *World Journal of Gastroenterology* 2015; **21**: 12003–12021.
- Kalra N, Gupta P, Chawla Y, Khandelwal N. Locoregional treatment for hepatocellular carcinoma: The best is yet to come. *World Journal of Radiology* 2015; **7**: 306–318.
- Fidelman N, Kerlan RK Jr. Transarterial chemoembolization and ⁹⁰Y radioembolization for hepatocellular carcinoma: Review of current applications beyond intermediate-stage disease. *American Journal of Roentology* 2015; **205**: 742–752.
- Sacco R, Giorgi L, Fornaro L, Bargellini I. Trans-arterial radioembolization for hepatocellular carcinoma. *Digestive Diseases* 2015; **33**: 661–667.
- Galun D, Basaric D, Zuvella M *et al.* Hepatocellular carcinoma: From clinical practice to evidence-based treatment protocols. *World Journal of Hepatology* 2015; **7**: 2274–2291.
- Schlachterman A, Craft WW Jr, Hilgenfeldt E *et al.* Current and future treatments for hepatocellular carcinoma. *World Journal of Gastroenterology* 2015; **21**: 8478–8491.
- Woo HY, Heo J. New perspectives on the management of hepatocellular carcinoma with portal vein thrombosis. *Clinical and Molecular Hepatology* 2015; **21**: 115–121.
- Yeh MM, Yeung RS, Apisarnthanarax S *et al.* Multidisciplinary perspective of hepatocellular carcinoma: A Pacific Northwest experience. *World Journal of Hepatology* 2015; **7**: 1460–1483.
- Yu SJ, Kim YJ. Effective treatment strategies other than sorafenib for the patients with advanced hepatocellular carcinoma invading portal vein. *World Journal of Hepatology* 2015; **7**: 1553–1561.
- Sacco R, Mismas V, Marceglia S *et al.* Transarterial radioembolization for hepatocellular carcinoma: An update and perspectives. *World Journal of Gastroenterology* 2015; **21**: 6518–6525.
- Wang CH, Wey KC, Mo LR *et al.* Current trends and recent advances in diagnosis, therapy, and prevention of hepatocellular carcinoma. *Asian Pacific Journal of Cancer Prevention* 2015; **16**: 3595–3604.
- Parikh ND, Waljee AK, Singal AG. Downstaging hepatocellular carcinoma: A systematic review and pooled analysis. *Liver Transplantation* 2015; **21**: 1142–1152.
- Wáng YX, De Baere T, Idée JM, Ballet S. Transcatheter embolization therapy in liver cancer: An update of clinical evidences. *Chinese Journal of Cancer Research* 2015; **27**: 96–121.
- Habib A, Desai K, Hickey R *et al.* Locoregional therapy of hepatocellular carcinoma. *Clinics in Liver Disease* 2015; **19**: 401–420.
- Abou-Alfa GK, Marrero J, Renz J, Lencioni R. Hepatocellular carcinoma tumor board: Making sense of the technologies. *American Society of Clinical Oncology Educational Book* 2015; **35**: e213–220.
- Chok KSH. Management of recurrent hepatocellular carcinoma after liver transplant. *World Journal of Hepatology* 2015; **7**: 1142–1148.

- Mosconi C, Cappelli A, Pettinato C, Golfieri R. Radioembolization with yttrium-90 microspheres in hepatocellular carcinoma: Role and perspectives. *World Journal of Hepatology* 2015; **7**: 738–752.
- Di Costanzo GG, Tortora R. Intermediate hepatocellular carcinoma: How to choose the best treatment modality? *World Journal of Hepatology* 2015; **7**: 1189–1191.
- Edeline J, Gilibert M, Garin E *et al.* Yttrium-90 microsphere radioembolization for hepatocellular carcinoma. *Liver Cancer* 2015; **4**: 16–25.
- Mauer K, O'Kelley R, Podda N *et al.* New treatment modalities for hepatocellular cancer. *Current Gastroenterology Reports* 2015; **17**: 442.
- Gomaa AI, Waked I. Recent advances in multidisciplinary management of hepatocellular carcinoma. *World Journal of Hepatology* 2015; **7**: 673–687.
- Yim HJ, Suh SJ, Um SH. Current management of hepatocellular carcinoma: An Eastern perspective. *World Journal of Gastroenterology* 2015; **21**: 3826–3842.
- Teo JY, Goh BK. Contra-lateral liver lobe hypertrophy after unilobar ⁹⁰Y radioembolization: An alternative to portal vein embolization? *World Journal of Gastroenterology* 2015; **21**: 3170–3173.
- Vilarinho S, Taddei T. Therapeutic strategies for hepatocellular carcinoma: New advances and challenges. *Current Treatment Options in Gastroenterology* 2015; **13**: 219–234.
- Willatt J, Hannawa KK, Ruma JA *et al.* Image-guided therapies in the treatment of hepatocellular carcinoma: A multidisciplinary perspective. *World Journal of Hepatology* 2015; **7**: 235–244.
- Boily G, Villeneuve JP, Lacoursière L *et al.* Transarterial embolization therapies for the treatment of hepatocellular carcinoma: CEPO review and clinical recommendations. *HPB* 2015; **17**: 52–65.
- Boas FE, Do B, Louie JD *et al.* Optimal imaging surveillance schedules after liver-directed therapy for hepatocellular carcinoma. *Journal of Vascular and Interventional Radiology* 2015; **26**: 69–73.
- Sangro B, Salem R. Transarterial chemoembolization and radioembolization. *Seminars in Liver Disease* 2014; **34**: 435–443.
- Ettorre GM, Levi Sandri GB, Santoro R *et al.* Bridging and downstaging to transplantation in hepatocellular carcinoma. *Future Oncology* 2014; **10** (Suppl): 61–63.
- Malfertheiner P, Verslype C, Kolligs FT *et al.* The effectiveness of selective internal radiation therapy in challenging cases of liver-predominant unresectable hepatocellular carcinoma. *Future Oncology* 2014; **10** (Suppl): 17–27.
- Vilgrain V, Abdel-Rehim M, Sibert A, Ronot M. Clinical studies in hepatocellular carcinoma. *Future Oncology* 2014; **10** (Suppl): 13–16.
- Sangro B. Evidence-based integration of selective internal radiation therapy into hepatocellular carcinoma management. *Future Oncology* 2014; **10** (Suppl): 7–11.
- Bolondi L. State of the art: hepatocellular carcinoma. *Future Oncology* 2014; **10** (Suppl): 1–6.
- Jazieh KA, Arabi M, Khankan AA. Transarterial therapy: An evolving treatment modality of hepatocellular carcinoma. *The Saudi Journal of Gastroenterology* 2014; **20**: 333–341.
- Kwok PC, Leung KC, Cheung MT *et al.* The survival benefit of radioembolization for inoperable hepatocellular carcinoma using yttrium-90 microspheres. *Journal of Gastroenterology and Hepatology* 2014; **29**: 1897–1904.
- Murata S, Mine T, Sugihara F *et al.* Interventional treatment for unresectable hepatocellular carcinoma. *World Journal of Gastroenterology* 2014; **20**: 13453–13465.
- Molla N, AlMenieir N, Simoneau E *et al.* The role of interventional radiology in the management of hepatocellular carcinoma. *Current Oncology* 2014; **21**: e480–492.
- Chapiro J, Duran R, Geschwind JF. Combination of intra-arterial therapies and sorafenib: Is there a clinical benefit? *La Radiologia Medica* 2014; **119**: 476–482.
- Raza A, Sood GK. Hepatocellular carcinoma review: Current treatment, and evidence-based medicine. *World Journal of Gastroenterology* 2014; **20**: 4115–4127.
- Crissien AM, Frenette C. Current management of hepatocellular carcinoma. *Journal of Gastroenterology and Hepatology* 2014; **10**: 153–161.
- Reataza M, Imagawa DK. Advances in managing hepatocellular carcinoma. *Frontiers of Medicine* 2014; **8**: 175–189.
- Lang H, Rieke J, Schlaak J. Resection or interventional treatment of hepatocellular carcinoma: which method for which patient? [Resektion oder lokal-ablative Therapie bei hepatozellulärem Karzinom:

- welche Methode für welche Patienten?] *Deutsche Medizinische Wochenschrift* 2014; **139**: 1780–1784. [Article in German]
- Bruix J, Gores GJ, Mazzaferro V. Hepatocellular carcinoma: clinical frontiers and perspectives. *Gut* 2014; **63**: 844–855.
- Talenfeld AD, Sista AK, Madoff DC. Transarterial Therapies for Primary Liver Tumors. *Surgical Oncology Clinics of North America* 2014; **23**: 323–351
- Amini A, Gamblin TC. Palliation: Treating Patients with Inoperable Biliary Tract and Primary Liver Tumors. *Surgical Oncology Clinics of North America* 2014; **23**: 383–397.
- Akgun V, Karaman B, Sari S *et al.* An alternative therapy for HCC with portal vein tumor thrombosis: Y-90 radioembolization. *World Journal of Surgery* 2014; **38**: 1246. [letter to the editor]
- Bargellini I, Florio F, Golfieri R *et al.* Trends in utilization of transarterial treatments for hepatocellular carcinoma: Results of a survey by the Italian Society of Interventional Radiology. *Cardiovascular and Interventional Radiology* 2014; **37**: 438–444.
- Weng Z, Ertle J, Zheng S *et al.* A new model to estimate prognosis in patients with hepatocellular carcinoma after yttrium-90 radioembolization. *PLoS One* 2013; **8**: e82225.
- Weng Z, Ertle J, Zheng S *et al.* Choi criteria are superior in evaluating tumor response in patients treated with transarterial radioembolization for hepatocellular carcinoma. *Oncology Letters* 2013; **6**: 1707–1712.
- Vivarelli M, Montalti R, Risaliti A. Multimodal treatment of hepatocellular carcinoma on cirrhosis: An update. *World Journal of Gastroenterology* 2013; **19**: 7316–7326.
- Reig M, Burrel M, Bruix J. Treatment of hepatocellular carcinoma with radioembolization: Gathering assumptions for trial design. *Journal of Vascular and Interventional Radiology* 2013; **24**: 1197–1199.
- Cohen GS, Black M. Multidisciplinary management of hepatocellular carcinoma: A model for therapy. *Journal of Multidisciplinary Healthcare* 2013; **6**: 189–195.
- Weintraub JL, Salem R. Treatment of hepatocellular carcinoma combining sorafenib and transarterial locoregional therapy: State of the science. *Journal of Vascular and Interventional Radiology* 2013; **24**:1123–1134.
- Xing M, Kokabi N, Camacho JC *et al.* ⁹⁰Y radioembolization versus chemoembolization in the treatment of hepatocellular carcinoma: An analysis of comparative effectiveness. *Journal of Comparative Effectiveness Research* 2013; **2**: 435–444.
- Göbel T, Blondin D, Kolligs F *et al.* Aktuelle Therapie des hepatozellulären Karzinoms unter besonderer Berücksichtigung neuer und multimodaler Therapiekonzepte [Current therapy of hepatocellular carcinoma with special consideration of new and multimodal treatment concepts]. *Deutsche Medizinische Wochenschrift* 2013; **138**: 1425–1430. [in German]
- Cohen GS, Black M. Multidisciplinary management of hepatocellular carcinoma: A model for therapy. *Journal of Multidisciplinary Healthcare* 2013; **6**:189–195.
- Dufour JF, Bargellini I, De Maria N *et al.* Intermediate hepatocellular carcinoma: Current treatments and future perspectives. *Annals of Oncology* 2013; **24** (Suppl 2): ii24–ii29.
- Pollak JS. Consider the perspectives: Interventional radiology. *Journal of Clinical Gastroenterology* 2013; **47** (Suppl): S43–46.
- Lau WY, Sangro B, Chen PJ *et al.* Treatment for hepatocellular carcinoma with portal vein tumor thrombosis: The emerging role for radioembolization using yttrium-90. *Oncology* 2013; **84**: 311–318.
- Salem R, Mazzaferro V, Sangro B. Yttrium 90 radioembolization for the treatment of hepatocellular carcinoma: Biological lessons, current challenges and clinical perspectives. *Hepatology* 2013; **58**: 2188–2197.
- Raoul JL, Gilibert M, Oziel-Taïeb S, Giovannini M. [Palliative treatment for hepatocellular carcinoma]. *Revue du Praticien* 2013; **63**: 233–236. [Article in French]
- Takayasu K. Transcatheter arterial chemoembolization for unresectable hepatocellular carcinoma: Recent progression and perspective. *Oncology* 2013; **84**: 28–33.
- Kim YH, Kim do Y. Yttrium-90 radioembolization for hepatocellular carcinoma: What we know and what we need to know. *Oncology* 2013; **84** (Suppl 1): 34–39.
- Salem R, Lewandowski RJ. Chemoembolization and radioembolization for hepatocellular carcinoma. *Clinical Gastroenterology and Hepatology* 2013; **11**: 604–611.

- Sangro B, Bilbao JI, Iñarrairaegui M. Reply to: "Pre-therapeutic dosimetry evaluation and selective internal radiation therapy of hepatocellular carcinoma using yttrium-90-loaded microspheres." *Journal of Hepatology* 2013; **58**: 1056–1057.
- Garine E, Rolland Y, Boucher E. Pre-therapeutic dosimetry evaluation and selective internal radiation therapy of hepatocellular carcinoma using yttrium-90-loaded microspheres. *Journal of Hepatology* 2013; **58**: 1055–1056. [letter to the editor]
- Bolondi L, Piscaglia F. Yttrium 90 radioembolization: The horizon is changing for patients with intermediate and advanced hepatocellular carcinoma. [Editorial to Mazzaferro V, Sposito C, Bhoori S *et al.* Yttrium (90) radioembolization for intermediate-advanced hepatocarcinoma: A phase II study. *Hepatology* 2013; **57**: 1826–1837.] *Hepatology* 2013; **57**: 1694–1696.
- Shrimal A, Prasanth M, Kulkarni AV. Interventional radiological treatment of hepatocellular carcinoma: an update. *Indian Journal of Surgery* 2012; **74**: 91–99.
- Kim do Y, Han KH. How to improve treatment outcomes for hepatocellular carcinoma of intermediate and advanced stage. *Digestive Diseases* 2012; **30**: 598–602.
- Rosmorduc O. State of the art – hepatocellular carcinoma. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 20–22.
- Sangro B. The ENRY analysis: A 325-patient European multicentre analysis. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 23–26.
- Kolligs F. BCLC treatment algorithm and the place of selective internal radiation therapy. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 27–29.
- Chow P, Ricke J, Malfertheiner P, Vilgrain V. Evolving clinical evidence for selective internal radiation therapy in hepatocellular carcinoma. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 30–33.
- Lau J. Hepatocellular carcinoma resection post-selective internal radiation therapy. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 39–40.
- Willatt JM, Francis IR, Novelli PM *et al.* Interventional therapies for hepatocellular carcinoma. *Cancer Imaging* 2012; **12**: 79–88.
- May BJ, Murthy R, Madoff DC. What's new in transarterial therapies for hepatocellular carcinoma? *Gastrointestinal Cancer Research* 2012; **5** (Suppl 1): S14–S19.
- Andreana L, Isgrò G, Marelli L *et al.* Treatment of hepatocellular carcinoma (HCC) by intra-arterial infusion of radio-emitter compounds: Trans-arterial radio-embolisation of HCC. *Cancer Treatment Reviews* 2012; **38**: 641–649.
- Braillon A; Ren W, Qi X, Jia J *et al*; van den Bosch MAAJ, Defreyne L; Oliveri RS, Wetterslev J, Gluud C; Forner A, Bruix J [authors' reply]. Hepatocellular carcinoma. *Lancet* 2012; **380**: 469–471. [Comment on Forner A, Llovet JM, Bruix J. *Lancet* 2012; **379**: 1245–1255.]
- Forner A, Llovet JM, Bruix J. Hepatocellular carcinoma. *Lancet* 2012; **379**: 1245–1255.
- Sangro B, Iñarrairaegui M, Bilbao JI. Radioembolization for hepatocellular carcinoma. *Journal of Hepatology* 2012; **56**: 467–473.
- Takayasu K. Transarterial chemoembolization for hepatocellular carcinoma over three decades: Current progress and perspective. *Japanese Journal of Clinical Oncology* 2012; **42**: 247–255.
- Radeleff BA, Stampfl U, Sommer CM *et al.* Transvaskuläre ablation des hepatozellulären karzinoms ist chemotherapie alles? [Transarterial ablation of hepatocellular carcinoma: Status and developments]. *Radiologe* 2012; **52**: 44–55. [in German]
- Meza-Junco J, Montano-Loza AJ, Liu DM *et al.* Locoregional radiological treatment for hepatocellular carcinoma; Which, when and how? *Cancer Treatment Reviews* 2012; **38**: 54–62.
- Takayasu K. Superselective transarterial chemoembolization for hepatocellular carcinoma: Recent progression and perspective. *Oncology* 2011; **81**: 105–110.
- Lencioni R, Crocetti L. Local-regional treatment of hepatocellular carcinoma. *Radiology* 2012; **262**: 43–58.
- Shah RP, Brown KT, Sofocleous CT. Arterially directed therapies for hepatocellular carcinoma. *AJR American Journal of Roentgenology* 2011; **197**: W590–W602.

- Herzer K, Müller S, Antoch G, Hilgard P. Locoregional therapies for hepatocellular: radioembolization with yttrium-90 microspheres. *Minerva Gastroenterologica e Dietologica* 2011; **57**: 287–298.
- Ettorre GM, Vennarecci G, Santoro R *et al.* Experiences in hepatic surgery and transplantation after radioembolization. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 109.
- Sangro B, Iñarrairaegui M. Radioembolization for hepatocellular carcinoma: evidence-based answers to frequently asked questions. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 110. doi: 10.4172/2155-9519.1000110.
- Guimaraes M, Uflacker R. Locoregional therapy for hepatocellular carcinoma. *Clinics in Liver Disease* 2011; **15**: 395–421.
- Sangro B, D'Avola D, Iñarrairaegui M, Prieto J. Transarterial therapies for hepatocellular carcinoma. *Expert Opinion on Pharmacotherapy* 2011; **12**: 1057–1073.
- Kim R, Byrne MT, Tan A, Aucejo F. What is the indication for sorafenib in hepatocellular carcinoma? a clinical challenge. *Oncology (Williston Park)* 2011; **25**: 283–291.
- Razumilava N, Gores GJ. Sorafenib for HCC: a pragmatic perspective. The Kim *et al* Article Reviewed *Oncology (Williston Park)* 2011; **25**: 295.
- Bujold A, Dawson LA. Stereotactic radiation therapy and selective internal radiation therapy for hepatocellular carcinoma. *Cancer/Radiothérapie* 2011; **15**: 54–63.
- Munene G, Vauthey JN, Dixon E. Summary of the 2010 AHPBA/SSO/SSAT Consensus Conference on HCC. *International Journal of Hepatology* 2011; **2011**: 565060.
- Lau WY, Lai EC, Leung TW. Current role of selective internal irradiation with yttrium-90 microspheres in the management of hepatocellular carcinoma: a systematic review. *International Journal of Radiation Oncology, Biology and Physics* 2011; **81**: 460–467.
- Sangro B, Salem R, Kennedy A *et al.* Radioembolization for hepatocellular carcinoma: a review of the evidence and treatment recommendations. *American Journal of Clinical Oncology* 2011; **34**: 422–431.
- Kolligs FT, Hoffmann RT, op den Winkel M *et al.* Diagnose und multimodale therapie des hepatozellulären karzinoms [Diagnosis and multimodal therapy for hepatocellular carcinoma]. *Zeitschrift für Gastroenterologie* 2010; **48**: 274–288. [in German]
- Davis CR. Interventional radiological treatment of hepatocellular carcinoma. *Cancer Control* 2010; **17**: 87–99.
- Lambert B, Van Vlierberghe H, Troisi R, Defreyne L. Radionuclide therapy for hepatocellular carcinoma. *Acta Gastro-Enterologica Belgica* 2010; **73**: 484–488.
- Yang JD, Roberts LR. Epidemiology and management of hepatocellular carcinoma. *Infectious Disease Clinics of North America* 2010; **24**: 899–919.
- Yang JD, Roberts LR. Hepatocellular carcinoma: a global view. *Nature Reviews Gastroenterology and Hepatology* 2010; **7**: 448–458.
- Poon RT. Recent advances in management of hepatocellular carcinoma. *Hong Kong Medical Diary* 2010; **15**: 18–22.
- Kulik L. Is radioembolization ready for the Barcelona Clinic Liver Cancer staging system? *Hepatology* 2010; **52**: 1528–1530.
- Van de Wiele C. Radioembolization of hepatocellular carcinoma. *Current Drug Discovery Technologies* 2010; **7**: 247–252.
- Lencioni R, Chen XP, Dagher L, Venook AP. Treatment of intermediate/advanced hepatocellular carcinoma in the clinic: how can outcomes be improved? *The Oncologist* 2010; **15** (suppl 4): 42–52.
- Lencioni R. Loco-regional treatment of hepatocellular carcinoma. *Hepatology* 2010; **52**: 762–773.
- Lencioni R. Loco-regional treatment of hepatocellular carcinoma in the era of molecular targeted therapies. *Oncology* 2010; **78** (Suppl 1): 107–112.
- Lencioni R, Crocetti L, De Simone P, Filipponi F. Loco-regional interventional treatment of hepatocellular carcinoma: techniques, outcomes, and future prospects. *Transplant International* 2010; **23**: 698–703.
- Senthil M, Mailey B, Leong L *et al.* Liver-directed regional therapy in the multi-disciplinary management of hepatocellular cancer. *Current Cancer Therapy Reviews* 2010; **6**: 19–25.
- Rossi L, Zoratto F, Papa A *et al.* Current approach in the treatment of hepatocellular carcinoma. *World Journal of Gastrointestinal Oncology* 2010; **2**: 348–359.

- Tsochatzis EA, Germani G, Burroughs AK. Transarterial chemoembolization, transarterial chemotherapy, and intra-arterial chemotherapy for hepatocellular carcinoma treatment. *Seminars in Oncology* 2010; **37**: 89–93.
- Antoch G, Mueller SP, Hamami M *et al.* [Selektive interne radiotherapie (SIRT) beim hepatozellulären karzinom] / Selective internal radiotherapy (SIRT) for hepatocellular carcinoma. *Fortschritte auf dem Gebiet der Röntgenstrahlen und der bildgebenden Verfahren* 2010; **182**: 660–670. [in German]
- Liapi E, Geschwind JF. Intra-arterial therapies for hepatocellular carcinoma: where do we stand? *Annals of Surgical Oncology* 2010; **17**: 1234–1246.
- Raoul JL, Boucher E, Rolland Y, Garin E. Treatment of hepatocellular carcinoma with intra-arterial injection of radionuclides. *Nature Reviews Gastroenterology and Hepatology* 2010; **7**: 41–49.
- Riaz A, Salem R. Yttrium-90 radioembolization in the management of liver tumors: expanding the global experience. *European Journal of Nuclear Medicine and Molecular Imaging* 2010; **37**: 451–452.
- Forner A, Trinchet JC. Transarterial therapies in HCC: Does embolization increase survival? *Journal of Hepatology* 2009; **51**: 981–983.
- Cabibbo G, Latteri F, Antonucci M, Craxì A. Multimodal approaches to the treatment of hepatocellular carcinoma. *Nature Clinical Practice Gastroenterology Hepatology* 2009; **6**: 159–169.
- Sangro B, Bilbao JL, Iñarrairaegui M *et al.* Treatment of hepatocellular carcinoma by radioembolization using ⁹⁰Y microspheres. *Digestive Diseases* 2009; **27**: 164–169.
- Hilgard P, Müller S, Hamami M *et al.* Selektive interne Radiotherapie (Radioembolisation) und Strahlentherapie beim HCC – Stand und Perspektiven / Selective internal radiotherapy (radioembolization) and radiation therapy for HCC – current status and perspectives. *Zeitschrift für Gastroenterologie / German Journal of Gastroenterology* 2009; **47**: 37–54. [in German]
- Al-Kalbani A, Kamel Y. Y-90 microspheres in the treatment of unresectable hepatocellular carcinoma. *The Saudi Journal of Gastroenterology* 2008; **14**: 90–92.
- Lau WY, Lai ECH. Hepatocellular carcinoma: current management and recent advances. *Hepatobiliary & Pancreatic Diseases International* 2008; **7**: 237–257.
- Ibrahim SM, Lewandowski RJ, Sato KT *et al.* Radioembolization for the treatment of unresectable hepatocellular carcinoma: A clinical review. *World Journal of Gastroenterology* 2008; **14**: 1664–1669.
- Mojtahedi A, Yang X, Goswami GK. Embolotherapy in the management of hepatocellular carcinoma. *Seminars in Interventional Radiology* 2008; **25**: 234–241.
- Allison C. Yttrium-90 microspheres (TheraSphere and SIR-Spheres) for the treatment of unresectable hepatocellular carcinoma. *Issues in Emerging Health Technologies* 2007; **102**: 1–6.
- Avila MA, Berasain C, Sangro B, Prieto J. New therapies for hepatocellular carcinoma. *Oncogene* 2006; **25**: 3866–3884.
- Clark H, Carson W, Kavanagh P *et al.* Staging and current treatment of hepatocellular carcinoma. *Radiographics* 2005; **25**: S3–S23.
- Lambert B, Van de Wiele C. Treatment of hepatocellular carcinoma by means of radiopharmaceuticals. *European Journal of Nuclear Medicine and Molecular Imaging* 2005; **32**: 980–989.
- Georgiades CS, Ramsey DE, Solomon S *et al.* New nonsurgical therapies in the treatment of hepatocellular carcinoma. *Techniques in Vascular and Interventional Radiology* 2001; **4**: 193–199.
- Ho S, Johnson P, Leung W *et al.* Combating hepatocellular carcinoma with an integrated approach. *Chinese Medical Journal* 1998; **112**: 80–83.
- Ngan H. Imaging and radiological intervention in hepatocellular carcinoma. *Hong Kong Medical Journal* 1997; **3**: 57–68.

Neuroendocrine Tumours

- de Mestier L, Zappa M, Mentic O *et al.* Liver transarterial embolizations in metastatic neuroendocrine tumors. *Rev Endocr Metab Disord* 2017; **18** (4): 459–471.
- Gaba RC, Mendoza-Elias N, Morrison JD *et al.* Decision making for selection of transarterial locoregional therapy of metastatic neuroendocrine tumors. *Seminars in Interventional Radiology* 2017; **34**: 101–108.
- Patel D, Chan D, Cehic G *et al.* Systemic therapies for advanced gastroenteropancreatic neuroendocrine tumors. *Expert Review of Endocrinology & Metabolism* 2016; **11** (4): 311–327.

- Ito T, Lee L, Jensen RT. Treatment of symptomatic neuroendocrine tumor syndromes: recent advances and controversies. *Expert Opinion on Pharmacotherapy* 2016; **23**: 1–15.
- Vilchez V, Gedaly R. Liver transplantation for the treatment of neuroendocrine liver metastases. *Best Practice & Research Clinical Endocrinology & Metabolism* 2016; **30**: 141–147.
- De Baere T, Deschamps F, Tselikas L *et al*. GEP-NETS update: Interventional radiology: Role in the treatment of liver metastases from GEP-NET tumors. *European Journal of Endocrinology* 2015; **172**: R151–166.
- Kennedy A. Liver metastases from neuroendocrine tumors *Future Oncology* 2014; **10** (Suppl): 83–87.
- John PK, Saif MW. Radioembolization in the treatment of neuroendocrine tumors of the pancreas. *Journal of the Pancreas* 2014; **15**: 332–334.
- Gupta S. Intra-arterial liver-directed therapies for neuroendocrine hepatic metastases. *Seminars in Interventional Radiology* 2013; **30**: 28–38.
- Wang SC, Fidelman N, Nakakuraa EK. Management of well-differentiated gastrointestinal neuroendocrine tumors metastatic to the liver. *Seminars in Oncology* 2013; **40**: 69–74.
- Lewis MA, Hobday TJ. Treatment of neuroendocrine tumor liver metastases. *International Journal of Hepatology* 2012; **2012**: 973946.
- Bester L. Selective internal radiation therapy for neuroendocrine liver metastases. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 67–69.
- Alistar A, Sung M, Michelle K. Clinical pathways for pancreatic neuroendocrine tumors. *Journal of Gastrointestinal Cancer* 2012; **43**: 532–540.
- Reidy-Lagunes D, Thornton R. Pancreatic neuroendocrine and carcinoid tumors: what's new, what's old, and what's different? *Current Oncology Reports* 2012; **14**: 249–256.
- Yang TX, Chua TC, Morris DL. Radioembolization and chemoembolization for unresectable neuroendocrine liver metastases – A systematic review. *Surgical Oncology* 2012; **21**: 299–308.
- Rossi RE, Massironi S, Spampatti MP *et al*. Treatment of liver metastases in patients with digestive neuroendocrine tumors. *Journal of Gastrointestinal Surgery* 2012; **16**: 1981–1992.
- Kennedy A, Coldwell D, Sangro B *et al*. Integrating radioembolization into the treatment paradigm for metastatic neuroendocrine tumors in the liver. *American Journal of Clinical Oncology* 2012; **35**: 393–398.
- Zappa M, Abdel-Rehim M, Hentic O *et al*. Liver-directed therapies in liver metastases from neuroendocrine tumors of the gastrointestinal tract. *Targeted Oncology* 2012; **7**: 107–116.
- Vyleta M, Coldwell D. Radioembolization in the treatment of neuroendocrine tumor metastases to the liver. *International Journal of Hepatology* 2011; **2011**: 785315.
- Lewis MA, Hubbard J. Multimodal liver-directed management of neuroendocrine hepatic metastases. *International Journal of Hepatology* 2011; **2011**: 452343.
- Harring T, Nguyen T, Goss J, O'Mahony C. Treatment of liver metastases in patients with neuroendocrine tumors: A comprehensive review. *International Journal of Hepatology* 2011; **2011**: 154541.
- Anthony L. Neuroendocrine hepatic tumors: summary of patient selection, response and toxicity of radioembolization in 281 patients. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 104 ePub doi: 10.4172/2155-9619.1000104.
- Strosberg JR, Cheema A, Kvols LK. A review of systemic and liver-directed therapies for metastatic neuroendocrine tumors of the gastroenteropancreatic tract. *Cancer Control* 2011; **18**: 127–137.
- Auernhammer CJ, Göke B. Therapeutic strategies for advanced neuroendocrine carcinomas of jejunum/ileum and pancreatic origin. *Gut* 2011; **60**: 1009–1021.
- Turaga KK, Kvols LK. Recent progress in the understanding, diagnosis, and treatment of gastroenteropancreatic neuroendocrine tumors. *CA A Cancer Journal for Clinicians* 2011; **61**: 113–132.
- Saxena A, Chua TC, Morris DL. Surgical management and emerging therapies to prolong survival in metastatic neuroendocrine cancer. *Annals of Surgical Oncology* 2011; **18**: S222–S223.

- Chandra P, Yarandi SS, Khazai N *et al.* Management of intractable hypoglycemia with yttrium-90 radioembolization in a patient with malignant insulinoma, *American Journal of the Medical Sciences* 2010; **340**: 414–417.
- Frilling A, Sotiropoulos GC, Li J *et al.* Multimodal management of neuroendocrine liver metastases. *HPB (Oxford)* 2010; **12**: 361–379.
- Nazario J, Gupta S. Transarterial liver-directed therapies of neuroendocrine hepatic metastases. *Seminars in Oncology* 2010; **37**: 118–126.
- Arnold R, Kegel T. Aktuelle therapiestrategien gegen neuroendokrine tumoren. *InFo Onkologie* 2010 Feb 18; 3–8. [in German]
- Hendlisz A, Flamen P, Van den Eynde M *et al.* Locoregional and radioisotopic targeted treatment of neuroendocrine tumours. *Acta Gastro-Enterologica Belgica* 2009; **72**: 44–48.
- Eehalt F, Saeger HD, Schmidt CM, Grützmann R. Neuroendocrine tumors of the pancreas. *Oncologist* 2009; **14**: 456–467.
- Auernhammer CJ, Jauch KW, Hoffmann JN. Lebermetastasierung bei neuroendokrinen Karzinomen des gastro-entero-pankreatischen Systems - Therapiestrategien [Liver metastases from neuroendocrine tumours of the gastroenteropancreatic system--therapeutic strategies] *Zentralblatt für Chirurgie* 2009; **134**: 410–417. [in German]
- Khasraw M, Gill A, Harrington T *et al.* Management of advanced neuroendocrine tumors with hepatic metastasis. *Journal of Clinical Gastroenterology* 2009; **43**: 838–847.
- Liu DM, Kennedy A *et al.* Minimally invasive techniques in management of hepatic neuroendocrine metastatic disease. *American Journal of Clinical Oncology* 2009; **32**: 200–215.
- Auernhammer CJ. Aktuelle standards und perspektiven in diagnostik und therapie von neuroendokrinen tumoren des gastroenteropancreatischen systems. *Journal Onkologie* 2008; 04–08. [in German]
- Falconi M, Plockinger U, Kwekkeboom DJ *et al.* Well-differentiated pancreatic nonfunctioning tumors/carcinoma. *Neuroendocrinology* 2006; **84**: 196–211.
- Madoff D, Gupta S, Ahrar K *et al.* Update on the management of neuroendocrine hepatic metastases. *Journal of Vascular and Interventional Radiology* 2006; **17**: 1235–1250.
- Plockinger U, Rindi G, Arnold R *et al.* Guidelines for the diagnosis and treatment of neuroendocrine gastrointestinal tumours. A consensus statement on behalf of the European Neuroendocrine Tumour Society (ENETS). *Neuroendocrinology* 2004; **80**: 394–424.

Breast Cancer

- Golse N, Adam R. Liver metastases from breast cancer: What role for surgery? Indications and results. *Clinical Breast Cancer* 2017 Jan 9; ePub doi: 10.1016/j.clbc.2016.12.012.
- Cianni R, Pelle G. Evidence-based integration of selective internal radiation therapy into the management of breast cancer liver metastases. *Future Oncology* 2014; **10** (Suppl): 93–95.
- Smits ML, Prince JF, Rosenbaum CE *et al.* Intra-arterial radioembolization of breast cancer liver metastases; A structured review. *European Journal of Pharmacology* 2013; **709**: 37–42.
- Diamond JR, Finlayson CA, Borges VF. Hepatic complications of breast cancer. *Lancet Oncology* 2009; **10**: 615–621.

Cholangiocarcinoma

- Filippi L, Schillaci O, Cianni R *et al.* Yttrium-90 resin microspheres and their use in the treatment of intrahepatic cholangiocarcinoma. *Future Oncol* 2018; **14** (9): 809–818.
- Najran P, Lamarca A, Mullan D *et al.* Update on treatment options for advanced bile duct tumours: radioembolisation for advanced cholangiocarcinoma. *Curr Oncol Rep* 2017; **19** (7): 50.
- Squadroni M, Tondulli L, Gatta G *et al.* Cholangiocarcinoma. *Crit Rev Oncol Haematol* 2017; **116**: 11–31.
- Currie BM, Soulen MC. Decision making: Intra-arterial therapies for cholangiocarcinoma-TACE and TARE. *Seminars in Interventional Radiology* 2017; **34**: 92–100.
- Koay EJ, Odisio BC, Javle M *et al.* Management of unresectable intrahepatic cholangiocarcinoma: how do we decide among the various liver-directed treatments? *HepatoBiliary Surgery and Nutrition* 2017; **6**: 105–116.

Wang EA, Broadwell SR, Bellavia RJ, Stein JP. Selective internal radiation therapy with SIR-Spheres in hepatocellular carcinoma and cholangiocarcinoma. *Journal of Gastrointestinal Oncology* 2017; **8**: 266–278.

Mosconi C, Cappelli A, Ascanio S *et al.* Yttrium-90 microsphere radioembolization in unresectable intrahepatic cholangiocarcinoma. *Future Oncology* 2017 Mar 27; ePub doi: 10.2217/fon-2017-0022.

Savic LJ, Chapiro J, Geschwind JH. Intra-arterial embolotherapy for intrahepatic cholangiocarcinoma: update and future prospects. *Hepatobiliary Surgery and Nutrition* 2017; **6**: 7–21.

Sommer CM, Kauczor HU, Pereira PL. Locoregional therapies of cholangiocarcinoma. *Visceral Medicine* 2016; **32**: 414–420

Brandi G, Venturi M, Pantaleo MA, Ercolani G. Cholangiocarcinoma: current opinion on clinical practice diagnostic and therapeutic algorithms. A review of the literature and a long-standing experience of a referral center. *Digestive and Liver Disease* 2016; **48**: 231–241.

Ezziddin S, Bücker A, Lammert F. Radioembolization as a treatment option. *Deutsches Ärzteblatt International* 2015; **112**: 372–373.

Seidensticker R, Ricke J, Seidensticker M. Integration of chemoembolization and radioembolisation into multimodal treatment of cholangiocarcinoma. *Best Practice & Research Clinical Gastroenterology* 2015; **29**: 319–332.

Fartoux L, Rosmorduc O. Evidence-based integration of selective internal radiation therapy into the management of cholangiocarcinoma. *Future Oncology* 2014; **10** (Suppl): 89–92.

Amini A, Gamblin TC. Palliation: Treating patients with inoperable biliary tract and primary liver tumors. *Surgical Oncology Clinics of North America* 2014; **23**: 383–397.

Zechlinski JJ, Rilling WS. Transarterial therapies for the treatment of intrahepatic cholangiocarcinoma. *Seminars in Interventional Radiology* 2013; **30**: 21–27.

De W Marsh R, Alonzo M, Bajaj S *et al.* Comprehensive review of the diagnosis and treatment of biliary tract cancer 2012. Part II: multidisciplinary management. *Journal of Surgical Oncology* 2012; **106**: 339–345.

Kolligs F. Selective internal radiation therapy for cholangiocarcinoma. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 70–71.

Hong K, Geschwind JF. Locoregional intra-arterial therapies for unresectable intrahepatic cholangiocarcinoma. *Seminars in Oncology* 2010; **37**:110–117.

Ocular Melanoma

Stedman B. Evidence-based integration of selective internal radiation therapy into the management of ocular melanoma liver metastases. *Future Oncology* 2014; **10** (Suppl): 97–100.

Eschelman DJ, Gonsalves CF, Sato T. Transhepatic therapies for metastatic uveal melanoma. *Seminars in Interventional Radiology* 2013; **30**: 39–48.

Damato B. Progress in the management of patients with uveal melanoma. The 2012 Ashton Lecture. *Eye (London)* 2012; **26**: 1157–1172.

Sato T. Locoregional management of hepatic metastasis from primary uveal melanoma. *Seminars in Oncology* 2010; **37**: 127–138.

Desmoplastic Small Round Cell Tumours

Dufresne A, Cassier P, Couraud L *et al.* Desmoplastic small round cell tumor: Current management and recent findings. *Sarcoma* 2012; **2012**: 714986.

Hayes-Jordan A, Anderson PM. The diagnosis and management of desmoplastic small round cell tumor: a review. *Current Opinion in Oncology* 2011; **23**: 385–389.

Pancreatic Cancer

Brown DB, Narayanan G. Interventional radiology and the pancreatic cancer patient. *The Cancer Journal* 2012; **18**: 591–601.

General

- Joo I, Kim HC, Kim GM *et al.* Imaging evaluation following ⁹⁰Y radioembolization of liver tumors: what radiologists should know. *Korean J Radiol* 2018; **19** (2): 209–222.
- Shamimi-Noori S, Gonsalves CF, Shaw CM. Metastatic liver disease: Indications for locoregional therapy and supporting data. *Seminars in Interventional Radiology* 2017; **34**: 145–166.
- Gordon AC, Uddin OM, Riaz A *et al.* Making the case: Intra-arterial therapy for less common metastases. *Seminars in Interventional Radiology* 2017; **34**: 132–139.
- Revel-Mouroz P, Otal P, Jaffro M *et al.* Other non-surgical treatments for liver cancer. *Reports of Practical Oncology & Radiotherapy* 2017; **22**: 181–192.
- Park JK, Phyu W, Zaw T *et al.* Yttrium-90 radioembolization of nonconventional liver tumors. *Interventional Oncology* 2016; **4**: E115–E129.
- Ray CE, Gaba RC, Knuttinen MG *et al.* Multiple arteries supplying a single tumor vascular distribution: microsphere administration options for the interventional radiologist performing radioembolization. *Seminars in Interventional Radiology* 2014; **31**: 203–206.
- Braat MN, van Erpecum KJ, Zonnenberg BA *et al.* Radioembolization-induced liver disease: a systematic review. *European Journal of Gastroenterology & Hepatology* 2016 Dec 6; ePub doi: 10.1097/MEG.0000000000000772.
- Tong AK, Kao YH, Too CW *et al.* Yttrium-90 hepatic radioembolization: Clinical review and current techniques in interventional radiology and personalized dosimetry. *British Journal of Radiology* 2016 Mar 4; ePub doi: [10.1259/bjr.20150943](https://doi.org/10.1259/bjr.20150943).
- Padia SA, Lewandowski RJ, Johnson GE *et al.* Radioembolization of hepatic malignancies: Background, quality improvement guidelines, and future directions. *Journal of Vascular and Interventional Radiology* 2016 Nov 8; ePub doi: 10.1016/j.jvir.2016.09.024.
- Westcott MA, Coldwell DM, Liu DM *et al.* The development, commercialization, and clinical context of yttrium-90 radiolabeled resin and glass microspheres. *Advances in Radiation Oncology* 2016 Aug. 3; ePub doi: 10.1016/j.adro.2016.08.003.
- Braat MN, Samim M, van den Bosch MA *et al.* The role of ⁹⁰Y-radioembolization in downstaging primary and secondary hepatic malignancies: a systematic review. *Clinical and Translational Imaging* 2016 Apr 23; ePub doi: 10.1007/s40336-016-0172-0.
- Schulz F, Friebe M. SIRT and its unresolved problems—Is imaging the solution? A review. *Journal of Cancer Therapy* 2016; **7**: 505–518.
- Koran ME, Lipnik AJ, Baker JC *et al.* Procedural impact of a dedicated interventional oncology service line in a national cancer institute comprehensive cancer center. *Journal of the American College of Radiology* 2016 Jun 11; ePub doi: 10.1016/j.jacr.2016.04.033.
- Mahnken AH. Current status of transarterial radioembolization. *World Journal of Radiology* 2016; **8**: 449–459.
- Bozkurt MF, Salanci BV, Uğur Ö. Intra-arterial radionuclide therapies for liver tumors. *Seminars in Nuclear Medicine* 2016; **46**: 324–339.
- Kouri BE, Abrams RA, Al-Refaie WB *et al.* ACR appropriateness criteria radiologic management of hepatic malignancy. *Journal of the American College of Radiology* 2016; **13**: 265–273
- Lau WY, Teoh YL, Win KM *et al.* Current role of selective internal radiation with yttrium-90 in liver tumors. *Future Oncology* 2016; **12**: 1193–1204.
- Borggreve AS, Landman AJ, Vissers CM *et al.* Radioembolization: Is prophylactic embolization of hepaticocentric arteries necessary? A systematic review. *Cardiovascular and Interventional Radiology* 2016; **39**: 696–704.
- Bilbao JI. Radioembolisation trials: What is the current evidence? *Cardiovascular and Interventional Radiology in Europe (CIRSE) Congress News* 2015.
- Habito CM. Editorial: radioembolization in the treatment of liver cancer: A multidisciplinary approach for individualized therapy. *Frontiers in Oncology* 2015; **5**: 216.
- Molvar C, Lewandowski RJ. Intra-arterial therapies for liver masses: Data distilled. *Radiologic Clinics of North America* 2015; **53**: 973–984.
- Sharma RA, Cummins C, Crellin A. Selective internal radiotherapy of the liver: At the crossroads of interventional oncology research and national health service commissioning. *Clinical Oncology* 2015; **26**: 733–735.

- Kalva SP, Sutphin PD. Invited commentary: ⁹⁰Y radioembolization. *RadioGraphics* 2015; **35**:1618-20. [Comment on Camacho JC *et al.* *RadioGraphics* 2015; **35**: 1602–1618.]
- Camacho JC, Moncayo V, Kokabi N *et al.* ⁹⁰Y radioembolization: Multimodality imaging pattern approach with angiographic correlation for optimized target therapy delivery. *RadioGraphics* 2015; **35**: 1602–1618.
- Kuei A, Saab S, Cho SK *et al.* Effects of yttrium-90 selective internal radiation therapy on non-conventional liver tumors. *World Journal of Gastroenterology* 2015; **21**: 8271–8283.
- de Baere T, Tselikas L, Pearson E *et al.* Interventional oncology for liver and lung metastases from colorectal cancer: The current state of the art. *Diagnostic and Interventional Imaging* 2015; **96**: 647–654.
- Habib A, Desai K, Hickey R *et al.* Transarterial approaches to primary and secondary hepatic malignancies. *Nature Reviews Clinical Oncology* 2015; **12**: 481–489.
- Braat AJ, Smits ML, Braat MN *et al.* Yttrium-90 hepatic radioembolization: An update on current practice and recent developments. *Journal of Nuclear Medicine* 2015; **56**: 1079–1087.
- Khajornjiraphan N, Thu NA, Chow PK. Yttrium-90 microspheres: A review of its emerging clinical indications. *Liver Cancer* 2015; **4**: 6–15.
- Franklin JM, GebSKI V, Poston GJ, Sharma RA. Clinical trials of interventional oncology-moving from efficacy to outcomes. *Nature Reviews Clinical Oncology* 2015; **12**: 93–104.
- Adam A, Kenny LM. Interventional oncology in multidisciplinary cancer treatment in the 21st century. *Nature Reviews Clinical Oncology* 2015; **12**: 105–113.
- Lee EW, Thakor AS, Tafti BA, Liu DM. ⁹⁰Y selective internal radiation therapy. *Surgical Oncology Clinics of North America* 2015; **24**: 167–185.
- Bargellini I. How does selective internal radiation therapy compare with and/or complement other liver-directed therapies. *Future Oncology* 2014; **10** (Suppl): 105–109.
- Wasan HS. Cost of selective internal radiation therapy versus other modalities. *Future Oncology* 2014; **10** (Suppl): 101–104.
- Maleux G. Latest selective internal radiation therapy recommendations from EU proctors. *Future Oncology* 2014; **10** (Suppl): 69–72.
- Manas DM. Hypertrophy in the contralateral lobe post-selective internal radiation therapy. *Future Oncology* 2014; **10** (Suppl): 65–67.
- Sangro B. Liver function considerations for post-selective internal radiation therapy resection (hepatocellular carcinoma and metastatic colorectal cancer). *Future Oncology* 2014; **10** (Suppl): 57–59.
- Rotellar F, Pardo F, Martínez-Ortega P. The safety of resection post-selective internal radiation therapy. *Future Oncology* 2014; **10** (Suppl): 53–55.
- Garlipp B, Bruns CJ. The evidence for resection post-selective internal radiation therapy. *Future Oncology* 2014; **10** (Suppl): 49–52.
- Sangro B. Chemoembolization and radioembolization. *Best Practice & Research and Clinical Gastroenterology* 2014; **25**: 909–919.
- Braat AJ, Huijbregts JE, Molenaar IQ *et al.* Hepatic radioembolization as a bridge to liver surgery. *Frontiers in Oncology* 2014; **4**: 199.
- Kennedy A. Radioembolization of hepatic tumors. *Journal of Gastrointestinal Oncology* 2014; **5**: 178–189.
- Zurkiya O, Suvranu Ganguli S. Beyond hepatocellular carcinoma and colorectal metastasis: The expanding applications of radioembolization. *Frontiers in Oncology* 2014; **4**: 150.
- Kennedy AS. Radiation oncology approaches in liver malignancies. *American Society of Clinical Oncology Educational Book* 2014; **34**: 150–155.
- Dominello M, Bowers J, Zaki M, Konski A. Radiotherapy and radioembolization for liver metastases. *Annals of Palliative Medicine* 2014; **3**: 104–113.
- Bester L, Meteling B, Boshell D *et al.* Transarterial chemoembolisation and radioembolisation for the treatment of primary liver cancer and secondary liver cancer: A review of the literature. *Journal of Medical Imaging and Radiation Oncology* 2014; **58**: 341–352.

- Schmidt F, Senninger N, Wolters HH, Mees ST. Fortschritt, limitationen und zukunft der onkologischen leberchirurgie [Advances, limitations and prospects of oncological liver surgery]. *Zentralblatt für Chirurgie* 2014; **139**: 203–211. [Article in German]
- Gonzalez-Guindalini FD, Botelho MP, Harmath CB *et al.* Assessment of liver tumor response to therapy: Role of quantitative imaging. *Radiographics* 2013; **33**: 1781–1800.
- Maor Y, Malnick S. Liver injury induced by anticancer chemotherapy and radiation therapy. *International Journal of Hepatology* 2013; **2013**: 815105.
- Hickey R, Vouche M, Sze DY *et al.* Cancer concepts and principles: Primer for the interventional oncologist — Part I. *Journal of Vascular and Interventional Radiology* 2013; **24**: 1157–1164.
- Hickey R, Vouche M, Sze DY *et al.* Cancer concepts and principles: Primer for the interventional oncologist — Part II. *Journal of Vascular and Interventional Radiology* 2013; **24**: 1167–1188.
- Sheth RA, Hesketh R, Kong DS *et al.* Barriers to drug delivery in interventional oncology. *Journal of Vascular and Interventional Radiology* 2013; **24**: 1201–1207.
- Kritzinger J, Klass D, Ho S *et al.* Hepatic embolotherapy in interventional oncology: Technology, techniques, and applications. *Clinical Radiology* 2013; **68**: 1–15.
- Mahnken AH, Spreafico C, Maleux G *et al.* Standards of practice in transarterial radioembolization. *Cardiovascular and Interventional Radiology* 2013; **36**: 613–622
- Johnston FM, Mavros MN, Herman JM, Pawlik TM. Local therapies for hepatic metastases. *Journal of the National Comprehensive Cancer Network* 2013; **11**: 153–160.
- Mahnken AH, Pereira PL, de Baère T *et al.* Interventional oncologic approaches to liver metastases. *Radiology* 2013; **266**: 407–430.
- Gabriel M. Radionuclide therapy beyond radioiodine. *Wiener Medizinische Wochenschrift* 2012; **162**: 430–439.
- Mäenpää H, Tenhunen M. [Radionuclide therapy for cancer—what's new?]. *Duodecim* 2012; **128**: 2209–2216. [in Finnish]
- Smits MLJ, van den Bosch MA, Nijssen JF *et al.* The evolution of radioembolisation. [Correspondence to Cosimelli M. The evolution of radioembolization. *Lancet Oncology* 2012; **13**: 965–966.] *Lancet Oncology* 2012; **13**: E519.
- Cosimelli M. The evolution of radioembolisation. *Lancet Oncology* 2012; **13**: 965–966.
- Berry D. Liver resection post-selective internal radiation therapy – an overview. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 36–38.
- Jakobs T. Selective internal radiation therapy for other liver metastases. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 72–74.
- Wasan H. Patient selection criteria for selective internal radiation therapy and integration into treatment guidelines. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres, European Journal of Cancer Supplements* 2012; **10** (3): 76–80.
- Memon K, Lewandowski RJ, Riaz A, Salem R. Chemoembolization and radioembolization for metastatic disease to the liver: Available data and future studies. *Current Treatment Options in Oncology* 2012; **13**: 403–415.
- Høyer M, Swaminath A, Bydder S *et al.* Radiotherapy for liver metastases: A review of evidence. *International Journal of Radiation Oncology Biology Physics* 2012; **82**: 1047–1457.
- RC. Chemoembolization practice patterns and technical methods among interventional radiologists: Results of an online survey. *AJR American Journal of Roentgenology* 2012; **198**: 692–699.
- Kennedy A, Coldwell D, Sangro B *et al.* Integrating radioembolization (⁹⁰Y microspheres) into current treatment options for liver tumors: Introduction to the international working group report. *American Journal of Clinical Oncology* 2012; **35**: 81–90.
- Kennedy A, Coldwell D, Sangro B *et al.* Radioembolization for the treatment of liver tumors: General principles. *American Journal of Clinical Oncology* 2012; **35**: 91–99.
- Lau WY, Kennedy AS, Kim YH *et al.* Patient selection and activity planning guide for selective internal radiotherapy with yttrium-90 resin microspheres. *International Journal of Radiation Oncology, Biology and Physics* 2012; **82**: 401–407.

- Coldwell D, Sangro B, Salem R *et al.* Radioembolization in the treatment of unresectable liver tumors: Experience across a range of primary cancers. *American Journal of Clinical Oncology* 2012; **35**: 167–177.
- Kao YH, Tan AE, Ng DC, Goh AS. Response to "Patient selection and activity planning guide for selective internal radiotherapy with yttrium-90 resin microspheres." *International Journal of Radiation Oncology, Biology and Physics* 2011; **80**: 1280. [Comment on Lau WY *et al.* *International Journal of Radiation Oncology, Biology and Physics* 2010 Oct 13; later published as 2012; **82**: 401–407.]
- Lau WY, Kennedy AS, Kim YH *et al.* In reply to Dr. Kao *et al.* *International Journal of Radiation Oncology, Biology and Physics* 2011; **80**: 1280–1281.
- Lau KN, Swan RZ, Sindram D *et al.* Hepatic tumor ablation: Application in a community hospital setting. *Surgical Oncology Clinics of North America* 2011; **20**: 455–466.
- Scheffter TE. Patient selection factors for stereotactic body radiotherapy and radioembolization for hepatic metastases. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 1.
- Prompers L, Bucerius J, Brans B *et al.* Selective internal radiation therapy (SIRT) in primary or secondary liver cancer. *Methods* 2011; **55**: 253–257.
- Memon K, Lewandowski RJ, Kulik L *et al.* Radioembolization for primary and metastatic liver cancer. *Seminars in Radiation Oncology* 2011; **21**: 294–302.
- Nachtnebel A, Sotti G, Vitale A, Perrini MR. Selective internal radiotherapy using yttrium-90 microspheres for primary and secondary liver malignancies. *Decision Support Document* 2011 Mar; **47**.
- Vogl TJ, Mack MG, Eichler K *et al.* Chemoperfusion und -embolisation von Lebermetastasen [Chemoperfusion and Embolization in the Treatment of Liver Metastases]. *RoFo : Fortschritte auf dem Gebiete der Röntgenstrahlen und der Nuklearmedizin* 2011; **183**: 12–23. [in German]
- Lowe K, Jeyarajah DR. Integration of surgery and radioembolization in treatment of hepatic tumors. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 105 ePub doi: 10.4172/2155-9619.1000105.
- Burrill J, Hafeli U, Liu DM. Advances in radioembolization – embolics and isotopes. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 107 ePub doi: 10.4172/2155-9619.1000107.
- Coldwell D, Sangro B, Wasan H *et al.* General selection criteria of patients for radioembolization of liver tumors: an international working group report. *American Journal of Clinical Oncology* 2011; **34**: 337–341.
- Morgan B, Kennedy AS, Lewington V *et al.* Intra-arterial brachytherapy of hepatic malignancies: watch the flow. *Nature Reviews Clinical Oncology* 2011; **8**: 115–120.
- Lewandowski RJ, Geschwind JF, Liapi E, Salem R. Transcatheter intraarterial therapies: Rationale and overview. *Radiology* 2011; **259**: 641–657.
- Hoffmann RT, Paprottka P, Jakobs TF *et al.* Arterial therapies of non-colorectal cancer metastases to the liver (from chemoembolization to radioembolization). *Abdominal Imaging* 2011; **36**: 671–676.
- Goffredo V, Paradiso A, Ranieri G, Gadaleta CD. Yttrium-90 (⁹⁰Y) in the principal radionuclide therapies: An efficacy correlation between peptide receptor radionuclide therapy, radioimmunotherapy and transarterial radioembolization therapy. Ten years of experience (1999-2009). *Critical Reviews in Oncology/Hematology* 2011; **80**: 393–410.
- Smith KA, Kim HS. Interventional radiology and image-guided medicine: interventional oncology. *Seminars in Oncology* 2011; **38**: 151–162.
- Uthappa MC, Ravikumar R, Gupta A. Selective internal radiation therapy: ⁹⁰Y (yttrium) labeled microspheres for liver malignancies (primary and metastatic). *Indian Journal of Cancer* 2011; **48**: 18–23.
- Sato KT. Yttrium-90 radioembolization for the treatment of primary and metastatic liver tumors. *Seminars in Roentgenology* 2011; **46**: 159–165.
- Lindsay R, Kennedy P. Oncology and interventional radiology. *Oncology News* 2010; **5**: 190–193.
- Kennedy AS. The role of radioembolization for treating liver tumors – Treatment review & latest advances. *Hematology & Oncology News & Issues* 2010 Oct; **17**–20.
- Vente MA, Zonnenberg BA, Nijsen JF. Microspheres for radioembolization of liver malignancies. *Expert Review of Medical Devices* 2010; **7**: 581–583.
- Carr BI. Regional hepatic therapy for cancer. *Seminars in Oncology* 2010; **37**: 82.
- Riaz A, Kulik LM, Mulcahy MF *et al.* Yttrium-90 radioembolization in the management of liver malignancies. *Seminars in Oncology* 2010; **37**: 94–101.

- Kennedy AS, Salem R. Radioembolization (yttrium-90 microspheres) for primary and metastatic hepatic malignancies. *Cancer Journal* 2010; **16**: 163–175.
- Deleporte A, Flamen P, Hendlitz A. State of the art: radiolabeled microspheres treatment for liver malignancies. *Expert Opinion on Pharmacotherapy* 2010; **11**: 579–586.
- Ahmadzadehfar H, Biersack HJ, Ezziddin S. Radioembolization of liver tumors With Yttrium-90 microspheres. *Seminars in Nuclear Medicine* 2010; **40**: 105–121.
- Roche A. Le point sur la chimioembolisation hépatique / Liver chemoembolization: an update. *Bulletin du Cancer* 2009; **96**: 1111–1116. [in French]
- Vogl TJ, Lee C, Zangos S *et al.* Aktueller standpunkt zur selektiven internen radiotherapie (SIRT) bei malignen lebertumoren. *Hessisches Ärzteblatt* 2009 Sept; 584–590. [in German]
- Quick AM, Lo SS, Mayr NA, Kim EY. Radiation therapy for intrahepatic malignancies. *Expert Reviews in Anticancer Therapy* 2009; **9**: 1511–1521.
- Fong AJB, Kemeny N, Brown K. Regional transvascular therapies for liver cancer: Theory, history, evolution and current opinions. *Journal of Interventional Oncology* 2009; **2**: 2–13.
- Hall M, Mesoloras G, Fong Y, Gulec SA. Yttrium 90 microsphere selective internal radiation treatment of hepatic malignancies. *Journal of Interventional Oncology* 2009; **2**: 14–25.
- Rose SC, Gulec SA. Yttrium 90 radiomicrosphere therapy: ongoing clinical trials. *Journal of Interventional Oncology* 2009; **2**: 72–83.
- Van De Wiele C, Defreyne L, Peeters M, Lambert B. Yttrium-90 labelled resin microspheres for treatment of primary and secondary malignant liver tumors. *Quarterly Journal of Nuclear Medicine and Molecular Imaging* 2009; **53**: 317–324.
- Bult W, Vente MA, Zonnenberg BA *et al.* Microsphere radioembolization of liver malignancies: current developments. *Quarterly Journal of Nuclear Medicine and Molecular Imaging* 2009; **53**: 325–335.
- Kennedy AS. Intraarterial yttrium-90 microspheres for hepatic malignancies *ASCO Educational Book* 2009; 251–255.
- Kennedy A. Targeted therapies address hard-to-treat liver tumors. *Oncology News International* 2009 March 23; **18**:
- Lambert B, Van De Wiele C. Selective internal radiation therapy of HCC and liver metastases: a locoregional or worldwide therapy? *The Quarterly Journal of Nuclear Medicine and Molecular Imaging* 2009; **53**: 302–304.
- Wasan H. The role of radioembolisation using SIR-Spheres® in secondary liver metastases of non-colorectal cancer origin – Emerging clinical data. *European Oncology* 2009; **4**: 70–74.
- Kalva SP, Thabet A, Wicky S. Recent advances in transarterial therapy of primary and secondary liver malignancies. *Radiographics* 2008; **28**: 101–117.
- Jakobs TF, Hoffmann RT, Tatsch K *et al.* Therapieresponse von Lebertumoren nach selektiver interner Radiotherapie / Therapy response of liver tumors after selective internal radiation therapy. *Radiologe* 2008; **48**: 839–849. [in German]
- Vente MA, Wondergem M, van der Tweel I *et al.* Yttrium-90 microsphere radioembolization for the treatment of liver malignancies: a structured meta-analysis. *European Radiology* 2009; **19**: 951–959.
- Murthy R, Kamat P, Nuñez R *et al.* Radioembolization of yttrium-90 microspheres for hepatic malignancy. *Seminars in Interventional Radiology* 2008; **25**: 48–57.
- Hoffmann RT, Jakobs TF, Tatsch K, Reiser MF. Selektive interne radiotherapie (SIRT) bei fortgeschrittenen lebertumoren und metastasen. *Deutsche Medizinische Wochenschrift* 2008; **133**: 1–4. [in German]
- Tatsch K, Hoffmann RT, Pöpperl G. Selektive interne radiotherapie (SIRT) inoperabler lebertumoren mit radioaktiv markierten mikrosphären / Selective internal radiotherapy (SIRT) with radioactive microspheres in unresectable liver tumors. *Nuklearmedizin* 2008; **31**: 101–113. [in German]
- Dubel GJ, Soares GM. Regional infusion-radioembolization. *Surgical Oncology Clinics of North America* 2008; **17**: 957–985.
- Liu DM, Cade DN, Knight J *et al.* Yttrium-90 radioembolization: Recent advances in hepatic embolotherapy. *Endovascular Today* June 2008; 75–82.
- Khodjibekova M, Szyszko T, Singh A *et al.* Treatment of primary and secondary liver tumours with selective internal radiation therapy. *Journal of Experimental Clinical Cancer Research* 2007; **26**: 561–570.

- Khodjibekova M, Szyszko T, Khan S *et al.* Selective internal radiation therapy with Yttrium-90 for unresectable liver tumours. *Reviews on Recent Clinical Trials* 2007; **2**: 212–216.
- Jakobs TF, Hoffmann RT, Tatsch K *et al.* Entwicklungen und perspektiven radioablativer verfahren / developments and perspectives in radioablative techniques. *Radiologe* 2007 Dec; **47**: 1083–1088. [in German]
- Brown DB, Gould JE, Gervais DA *et al.* Transcatheter therapy for hepatic malignancy: Standardization of terminology and reporting criteria. *Journal of Vascular and Interventional Radiology* 2007; **18**: 1469–1478.
- Gates VL, Atassi B, Lewandowski RJ *et al.* Radioembolization with yttrium-90 microspheres: review of an emerging treatment for liver tumors. *Future Oncology* February 2007; **3**: 73–81.
- Lewandowski RJ, Salem R. Yttrium-90 radioembolization of hepatocellular carcinoma and metastatic disease to the liver. *Seminars in Interventional Radiology* 2006; **23** (1): 64–72.
- Salem R, Thurston K. Radioembolization with ⁹⁰yttrium microspheres: A state-of-the-art brachytherapy treatment for primary and secondary liver malignancies. Part 3: Comprehensive literature review and future direction. *Journal of Vascular and Interventional Radiology* 2006; **17**: 1571–1594.
- Salem R, Thurston K. Radioembolization with ⁹⁰yttrium microspheres: A state-of-the-art brachytherapy treatment for primary and secondary liver malignancies. Part 2: Special topics. *Journal of Vascular and Interventional Radiology* 2006; **17**: 1425–1439.
- Salem R, Thurston K. Radioembolization with ⁹⁰yttrium microspheres: A state-of-the-art brachytherapy treatment for primary and secondary liver malignancies. Part 1: Technical and methodologic considerations. *Journal of Vascular and Interventional Radiology* 2006; **17**: 1251–1278.
- Brans B, Linden O, Giammarile F *et al.* Clinical applications of newer radionuclide therapies. *European Journal of Cancer* 2006; **42**: 994–1003.
- Murthy R, Habbu A, Salem R. Trans-arterial hepatic radioembolisation of yttrium-90 microspheres. *Biomedical Imaging and Intervention Journal* 2006; **2** (3): e43.
- Kennedy A, Coldwell D, Liu D *et al.* Liver directed radiotherapy with microspheres: second annual clinical symposium. *American Journal of Oncology Review* 2006; **4**: 1–8.
- Garrean S, Espat N. Yttrium-90 internal radiation therapy for hepatic malignancy. *Surgical Oncology* 2005; **14**: 179–193.
- Coldwell D, Sewell P. The expanding role of interventional radiology in the supportive care of the oncology patient: From diagnosis to therapy. *Seminars in Oncology* 2005; **32**: 169–173.
- Sinha VR, Goyal V, Trehan A. Radioactive microspheres in therapeutics. *Pharmazie* 2004; **59**: 419–426.
- Bronson J. The malignant liver: Community-based state-of-the-art therapy. *Imaging Economics* 2004; **17**: 25–30.
- Moroz P, Gray B. Radiotherapy in the treatment of advanced liver cancer: current status and future directions. *Asian Journal of Surgery* 2000; **23**: 32–41.
- Ho S, Lau W, Leung T *et al.* Internal radiation therapy for patients with primary or metastatic hepatic cancer. *Cancer* 1998; **83**: 1894–1907.

Mechanistic Aspects of Treatment

Papers on Mechanistic Aspects of Treatment

- Kurilova I, Beets-Tan RGH, Ulaner GA *et al.* ⁹⁰Y resin microspheres radioembolization for colon cancer liver metastases using full-strength contrast material. *Cardiovasc Intervent Radiol*. 2018 **15**. ePub doi: 10.1007/s00270-018-1985-1.
- Loewenstern J, Welch C, Lekperic S *et al.* Patient radiation exposure in transradial versus transfemoral yttrium-90 radioembolization: a retrospective propensity score-matched analysis. *J Vasc Interv Radiol* 2018; ePub doi: 10.1016/j.jvir.2018.02.011.
- Bargellini I, Crocetti L, Turini FM *et al.* Response assessment by volumetric iodine uptake measurement: Preliminary experience in patients with intermediate-advanced hepatocellular carcinoma treated with yttrium-90 radioembolization. *Cardiovasc Intervent Radiol* 2018 Apr 13. ePub doi: 10.1007/s00270-018-1962-8.
- Chan KT, Alessio AM, Johnson GE *et al.* hepatotoxic dose thresholds by positron-emission tomography after yttrium-90 radioembolization of liver tumors: a prospective single-arm observational study. *Cardiovasc Intervent Radiol* 2018 Apr 12. ePub doi: 10.1007/s00270-018-1949-5.
- Kafrouni M, Allimant C, Fourcade M *et al.* Retrospective voxel-based dosimetry for assessing the body surface area model ability to predict delivered dose and radioembolization outcome. *J Nucl Med* 2018 Mar 15. ePub doi: 10.2967/jnumed.117.202937.
- Braat AJAT, Lam MGEH. No need for prophylactic abdominal ice packing during radioembolization. *Cardiovasc Intervent Radiol* 2018; **41** (1): 200–201.
- Wang TH, Huang PI, Hu YW *et al.* Combined Yttrium-90 microsphere selective internal radiation therapy and external beam radiotherapy in patients with hepatocellular carcinoma: From clinical aspects to dosimetry. *PLoS One* 2018 Jan 2; **13** (1): e0190098. ePub doi: 10.1371/journal.pone.0190098.
- Dewaraja YK, Chun SY, Srinivasa RN *et al.* Improved quantitative ⁹⁰Y bremsstrahlung SPECT/CT reconstruction with Monte Carlo scatter modeling. *Med Phys* 2017; **44** (12): 6364–6376.
- Forwood N, Willowson KP, Tapner M *et al.* Assessment of the relative contribution of volume and concentration changes in Yttrium-90 labelled resin microspheres on ionization chamber measurements. *Australas Phys Eng Sci Med* 2017; **40** (4): 943–948.
- Sharma RA, Gibbs P, Sharma NK *et al.* Adequate SIRT activity dose is as important as adequate chemotherapy dose - Authors' reply. *Lancet Oncol* 2017; **18** (11): e637.
- Braat AJAT, Kappadath SC, Bruijnen RCG *et al.* Adequate SIRT activity dose is as important as adequate chemotherapy dose. *Lancet Oncol* 2017; **18** (11): e636.
- Sancho L, Rodriguez-Fraile M, Bilbao JI *et al.* Is a technetium-99m macroaggregated albumin scan essential in the workup for selective internal radiation therapy with yttrium-90? an analysis of 532 patients. *J Vasc Interv Radiol* 2017; **28** (11): 1536–1542.
- Seror O, Nault JC, N'Kontchou G *et al.* Is "Segmentectomy" a Suitable Term to Use in Patients Undergoing Hepatic Segmental ⁹⁰Y Radioembolization for the Treatment of Hepatocellular Carcinoma Up to 3 cm? *Radiology* 2017; **285** (2): 690–691.
- Spahr N, Schilling P, Thoduka S *et al.* Predictive SIRT dosimetry based on a territorial model. *EJNMMI Phys* 2017; **4** (1): 25.
- Grosser OS, Ruf J, Pethe A *et al.* Urinary excretion of Yttrium-90 after radioembolization with yttrium-90-labeled resin-based microspheres. *Health Phys* 2017 Oct 18. ePub doi: 10.1097/HP.0000000000000734.
- Bastiaannet R, Viergever MA, de Jong HWAM. Impact of respiratory motion and acquisition settings on SPECT liver dosimetry for radioembolization. *Med Phys* 2017; **44** (10): 5270–5279.
- Hashikin NAA, Yeong CH, Guatelli S *et al.* Systematic investigation on the validity of partition model dosimetry for ⁹⁰Y radioembolization using Monte Carlo simulation. *Phys Med Biol* 2017 Aug 22; **62** (18): 7342–7356.
- Ausland L, Revheim ME, Skretting A, Stokke C. Respiratory motion during ⁹⁰Yttrium PET contributes to underestimation of tumor dose and overestimation of normal liver tissue dose. *Acta Radiologica* 2017 Jan 1; ePub doi: 10.1177/0284185117710052.

- Paprottka KJ, Todica A, Ilhan H *et al.* Evaluation of visualization using a 50/50 (contrast media/glucose 5% solution) technique for radioembolization as an alternative to a standard sandwich technique. *Cardiovascular and Interventional Radiology* 2017 Jun 5; ePub doi: 10.1007/s00270-017-1712-3.
- Hinrichs JB, Marquardt S, Wacker FK *et al.* Coil embolization of reversed-curve hepatointestinal collaterals in radioembolization: potential solutions for a challenging task. *Radiol Case Rep* 2017 May 27; **12** (3): 529–533.
- Choi JW, Yoo MY, Kim HC *et al.* Prophylactic temporary occlusion of the cystic artery using a fibered detachable coil during ⁹⁰Y radioembolization. *Cardiovascular and Interventional Radiology* 2017 May 12; ePub doi: 10.1007/s00270-017-1688-z.
- Aramburu J, Anton R, Rivas A *et al.* The role of angled-tip microcatheter and microsphere injection velocity in liver radioembolization: a computational particle-hemodynamics study. *International Journal for Numerical Methods in Biomedical Engineering* 2017 May 4; ePub doi: 10.1002/cnm.2895.
- van den Hoven AF, Braat MN, Prince JF *et al.* Liver CT for vascular mapping during radioembolisation workup: comparison of an early and late arterial phase protocol. *European Radiology* 2016; **27**: 61–69.
- Fallahpoor M, Abbasi M, Parach AA, Kalantari F. Internal dosimetry for radioembolization therapy with Yttrium-90 microspheres. *Journal of Applied Clinical Medical Physics* 2017; **18**: 176–180.
- Gordic S, Ayache JB, Kennedy P *et al.* Value of tumor stiffness measured with MR elastography for assessment of response of hepatocellular carcinoma to locoregional therapy. *Abdominal Radiology* 2017 Feb 2; ePub doi: 10.1007/s00261-017-1066-y.
- James T, Hill J, Fahrback T, Collins Z. Differences in radiation activity between glass and resin ⁹⁰Y microspheres in treating unresectable hepatic cancer. *Health Physics* 2017; **112**: 300–304.
- Van Der Gucht A, Jreige M, Denys A *et al.* Resin versus glass microspheres for yttrium-90 transarterial radioembolization: Comparing survival in unresectable hepatocellular carcinoma using pretreatment partition model dosimetry. *Journal of Nuclear Medicine* 2017 Jan 12; ePub doi: 10.2967/jnumed.116.184713.
- Chao C, Stavropoulos SW, Mondschein JI *et al.* Effect of substituting 50% Isovue for sterile water as the delivery medium for SIR-Spheres: Improved dose delivery and decreased incidence of stasis. *Clinical Nuclear Medicine* 2017 Jan 9; ePub doi: 10.1097/RLU.0000000000001532.
- Pasciak AS, Lin A, Georgiades C *et al.* Computational simulation of the predicted dosimetric impact of adjuvant yttrium-90 PET/CT-guided percutaneous ablation following radioembolization. *EJNMMI Research* 2016; **6**: 89.
- Ward TJ, Louie JD, Sze DY. Yttrium-90 radioembolization with resin microspheres without routine embolization of the gastroduodenal artery. *Journal of Vascular and Interventional Radiology* 2016 Nov 21; ePub doi: 10.1016/j.jvir.2016.09.002.
- Tong AK, Kao YH, Too CW *et al.* Yttrium-90 hepatic radioembolization: Clinical review and current techniques in interventional radiology and personalized dosimetry. *British Journal of Radiology* 2016 Mar 4; ePub doi: 10.1259/bjr.20150943.
- Wu CH, Liao YJ, Lin TY *et al.* A volume-equivalent spherical necrosis-tumor-normal liver model for estimating absorbed dose in yttrium-90 microsphere therapy. *Medical Physics* 2016; **43**: 6082.
- Rose SC, Narsinh KH, Newton IG. Quantification of blood pressure changes in the vascular compartment when using an anti-reflux catheter during chemoembolization versus radioembolization: A retrospective case series. *Journal of Vascular and Interventional Radiology* 2016 Nov 10; ePub doi: 10.1016/j.jvir.2016.08.007.
- Koran ME, Stewart S., Baker JC *et al.* Five percent dextrose maximizes dose delivery of Yttrium-90 resin microspheres and reduces rates of premature stasis compared to sterile water. *Biomedical Reports* 2016; **5**: 745–748.
- Aramburu J, Antón R, Rivas A *et al.* Liver cancer arterial perfusion modelling and CFD boundary conditions methodology: A case study of the haemodynamics of a patient-specific hepatic artery in

literature-based healthy and tumour-bearing liver scenarios. *International Journal for Numerical Methods in Biomedical Engineering* 2016; **32**: e02764.

Gnesin S, Canetti L, Adib S *et al.* Partition model based ^{99m}Tc -MAA SPECT/CT predictive dosimetry compared to ^{90}Y TOF PET/CT post-treatment dosimetry in radioembolisation of hepatocellular carcinoma: A quantitative agreement comparison. *The Journal of Nuclear Medicine* 2016; **57**: 1672–1678.

Bishay VL, Biederman DM, Ward TJ *et al.* Transradial approach for hepatic radioembolization: Initial results and technique. *American Journal of Roentgenology* 2016; **207**: 1112–1121.

Acar E, Çapa Kaya G, Durak H. Hepatopulmonary shunt reduction with ^{177}Lu -DOTATATE therapy. *Clinical Nuclear Medicine* 2016; **41**: 866–871.

Aramburu J, Antón R, Rivas A *et al.* Computational assessment of the effects of the catheter type on particle-hemodynamics during liver radioembolization. *Journal of Biomechanics* 2016 Oct 5; ePub doi: 10.1016/j.jbiomech.2016.09.035.

Aramburu J, Antón R, Rivas A *et al.* Numerical investigation of liver radioembolization via computational particle-hemodynamics: The role of the microcatheter distal direction and microsphere injection point and velocity. *Journal of Biomechanics* 2016 Oct 5; ePub doi: 10.1016/j.jbiomech.2016.09.034.

de Silva S, Mackie S, Aslan P *et al.* Histological comparison of kidney tissue following radioembolization with yttrium-90 resin microspheres and embolization with bland microspheres. *CardioVascular and Interventional Radiology* 2016; **39**: 1743–1749.

Caine M, McCafferty MS, McGhee S. *et al.* Impact of yttrium-90 microsphere density, flow dynamics, and administration technique on spatial distribution: analysis using an *in vitro* model. *Journal of Vascular and Interventional Radiology* 2016 Sep 15; ePub doi: 10.1016/j.jvir.2016.07.001.

Cai B, Altman MB, Garcia-Ramirez J *et al.* Process improvement for the safe delivery of multidisciplinary-executed treatments-A case in Y-90 microspheres therapy. *Brachytherapy* 2016 Sep 8; ePub doi: 10.1016/j.brachy.2016.08.001.

Kallini JR, Gabr A, Kulik L *et al.* The utility of unilobar technetium-99m macroaggregated albumin to predict pulmonary toxicity in bilobar hepatocellular carcinoma prior to yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2016; **27**: 1453–1456.

Pieper CC, Willinek WA, Meyer C *et al.* Intravoxel incoherent motion diffusion-weighted MR imaging for prediction of early arterial blood flow stasis in radioembolization of breast cancer liver metastases. *Journal of Vascular and Interventional Radiology* 2016; **27**: 1320–1328.

Pasciak AS, Bourgeois AC, Paxton BE *et al.* Bariatric radioembolization: A pilot study on technical feasibility and safety in a porcine model. *Journal of Vascular and Interventional Radiology* 2016; **27**: 1509–1517.

Högberg J, Rizell M, Hultborn R *et al.* Simulation model of microsphere distribution for selective internal radiation therapy agrees with observations. *International Journal of Radiation Oncology, Biology, and Physics* 2016 May 13; ePub doi: 10.1016/j.ijrobp.2016.05.007

Jha AK, Mithun S, Purandare NC *et al.* Impact of the activity calculation method used in transarterial radioembolization: a dosimetric comparison between ^{90}Y -SIR-Spheres and ^{90}Y -TheraSphere therapy. *Nuclear Medicine Communications* 2016 May 13; ePub doi: 10.1097/MNM.0000000000000544.

Pasciak AS, Nodit L, Bourgeois AC *et al.* A dosimetric investigation into the effects of yttrium-90 radioembolization on the GI tract: In-vivo and histological analysis in an animal model. *Journal of Nuclear Medicine* 2016; **57**: 1020–1026.

Grosser OS, Ruf J, Kupitz D *et al.* Pharmacokinetics of ^{99m}Tc -MAA- and ^{99m}Tc -HSA-microsphere used in preradioembolization dosimetry: Influence on the liver-lung shunt. *Journal of Nuclear Medicine* 2016; **57**: 925–927.

Biederman DM, Titano JJ, Tabori NE *et al.* Outcomes of radioembolization in the treatment of hepatocellular carcinoma with portal vein invasion: Resin versus glass microspheres. *Journal of Vascular and Interventional Radiology* 2016; **27**: 812–821.

Abi-Jaoudeh N. Commentary on: Resin versus glass microspheres. *Journal of Vascular and Interventional Radiology* 2016; **27**: 822–823. [Comment on: Biederman DM, *et al.* *Journal of Vascular and Interventional Radiology* 2016; **27**: 822–823.]

- Paprottka KJ, Lehner S, Fendler WP *et al.* Reduced periprocedural analgesia following replacement of water for injection with glucose 5% solution as the infusion medium for ⁹⁰Y-resin microspheres. *Journal of Nuclear Medicine* 2016; **57**: 1679–1684.
- Boas FE, Brody LA, Erinjeri JP *et al.* Quantitative measurements of enhancement on preprocedure triphasic CT can predict response of colorectal liver metastases to radioembolization. *American Journal of Roentology* 2016 Jun 1; ePub doi: 10.2214/AJR.15.15767.
- Younge KC, Lee C, Moran JM *et al.* Failure mode and effects analysis in a dual-product microsphere brachytherapy environment. *Practical Radiation Oncology* 2016 Mar 16; ePub doi: 10.1016/j.prro.2016.03.003.
- Samin M, Braat MN, Lam MG. Radioembolization following liver resection: a call for dosimetry. *Journal of Vascular and Interventional Radiology* 2016; **27**:612–613. [Comment on: Kessler J *et al.* *Journal of Vascular and Interventional Radiology* 2016; **27**:46–51.]
- Kessler J, Lewis A, Gagandeep S *et al.* Reply to letter re: Radioembolization following liver resection: a call for dosimetry. *Journal of Vascular and Interventional Radiology* 2016; **27**: 613–614. [Comment on: Samin M *et al.* *Journal of Vascular and Interventional Radiology* 2016; **27**:612–613].
- Kao YH, Lichtenstein M. Origin, dosimetric effect and clinical limitations of the semi-empirical body surface area method for radioembolization using yttrium-90 resin microspheres. *Journal of Medical Imaging and Radiation Oncology* 2016; **60**: 382–385.
- Garin E, Edeline J, Rolland Y. High impact of preferential flow on ^{99m}Tc-MAA and ⁹⁰Y-loaded microsphere uptake correlation. *Journal of Nuclear Medicine* 2016; **57**:1829–1830. [Letter to the editor: Haug AR, Ilhan H Appearance are often deceptive. *Journal of Nuclear Medicine* 2016; **57**:1830–1831.]
- Yerubandi V, Ronald J, Howard BA *et al.* Patient and tumor characteristics predictive of an elevated hepatopulmonary shunt fraction before radioembolization of hepatic tumors. *Nuclear Medicine Communication* 2016 Apr 21; ePub doi: 10.1097/MNM.0000000000000528.
- Aramburu J, Antón R, Rivas A *et al.* Computational particle-hemodynamics analysis of liver radioembolization pretreatment as an actual treatment surrogate. *International Journal for Numerical Methods in Biomedical Engineering* 2016 Mar 31; ePub doi: 10.1002/cnm.2791.
- Borggreve AS, Landman AJ, Vissers CM *et al.* Radioembolization: Is prophylactic embolization of hepaticocentric arteries necessary? A systematic review. *Cardiovascular and Interventional Radiology* 2016 Mar 2; ePub doi: 10.1007/s00270-016-1310-9. [Letter to the editor: Jia Z. *et al.*, *Cardiovascular and Interventional Radiology* 2016 Jun 2; ePub doi: 10.1007/s00270-016-1378-2.]
- Pasciak AS, Bourgeois AC, Bradley YC *et al.* A microdosimetric analysis of absorbed-dose to tumor as a function of the number of microspheres per unit volume in yttrium-90 radioembolization. *Journal of Nuclear Medicine* 2016; **57**: 1020–1026.
- Kwok N, Irani Z, Sheth R, Arellano RS. Hepatopulmonary shunt reduction with bland embolization for yttrium-90 radioembolization. *Diagnostic and Interventional Imaging* 2016; **97**: 369–370.
- Rhee S, Kim S, Cho J *et al.* Semi-quantitative analysis of post-transarterial radioembolization ⁹⁰Y microsphere positron emission tomography combined with computed tomography (PET/CT) images in advanced liver malignancy: Comparison with ^{99m}Tc macroaggregated albumin (MAA) single photon emission computed tomography (SPECT). *Nuclear Medicine and Molecular Imaging* 2016; **50**: 63–69.
- D'Emic N, Engelman A, Molitoris J *et al.* Prognostic significance of neutrophil-lymphocyte ratio and platelet-lymphocyte ratio in patients treated with selective internal radiation therapy. *Journal of Gastrointestinal Oncology* 2016; **7**: 269–277.
- Laffont S, Rolland Y, Ardisson V *et al.* Occupational radiation exposure of medical staff performing ⁹⁰Y-loaded microsphere radioembolization. *European Journal of Nuclear Medicine & Molecular Imaging* 2016; **43**: 824–831.
- Gates VL, Gabr A, Kallini J *et al.* Commentary on: "Occupational radiation exposure of medical staff performing ⁹⁰Y-loaded microsphere radioembolization". *European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43**: 822–823. [Comment on: Laffont S *et al.* *European Journal of Nuclear Medicine & Molecular Imaging* 2016; **43**: 824–831.]
- Posham R, Biederman DM, Patel RS *et al.* Transradial approach for noncoronary interventions: A single-center review of safety and feasibility in the first 1,500 cases. *Journal of Vascular and Interventional Radiology* 2016; **27**: 159–166.

- Rodríguez LS, Thang SP, Li H *et al.* A descriptive analysis of remnant activity during ⁹⁰Y resin microspheres radioembolization of hepatic tumors: Technical factors and dosimetric implications. *Annals of Nuclear Medicine* 2016; **30**: 255–261.
- Ferreira KM, Fenwick AJ, Arinc A, Johansson LC. Standardisation of ⁹⁰Y and determination of calibration factors for ⁹⁰Y microspheres (resin) for the NPL secondary ionisation chamber and a Capintec CRC-25R. *Applied Radiation and Isotopes* 2016; **109**: 226–230.
- Pieper CC, Willinek WA, Thomas D *et al.* Incidence and risk factors of early arterial blood flow stasis during first radioembolization of primary and secondary liver malignancy using resin microspheres: An initial single-center analysis. *European Radiology* 2016; **26**: 2779–2789.
- Kessler J, Lewis A, Gagandeep S *et al.* Radioembolization following liver resection: Safety and dosing considerations. *Journal of Vascular and Interventional Radiology* 2016; **27**: 46–51.
- Erleben C, Scheurig-Münkler C, Geisel D *et al.* Hepatopulmonary shunting after surgical, interventional and systemic therapy in patients with liver malignancies scheduled for radioembolization. *Acta Radiologica* 2016; **57**: 908–913..
- van den Hoven AF, Prince JF, de Keizer B *et al.* Use of C-Arm cone beam CT during hepatic radioembolization: Protocol optimization for extrahepatic shunting and parenchymal enhancement. *CardioVascular and Interventional Radiology* 2016; **39**: 64–73.
- Xing M, Lahti S, Kokabi N *et al.* ⁹⁰Y radioembolization lung shunt fraction in primary and metastatic liver cancer as a biomarker for survival. *Clinical Nuclear Medicine* 2016; **41**: 21–27.
- Savin MA, Chehab M, Campbell JM *et al.* Yttrium-90 infusion: Incidence and outcome of delivery system occlusions during 885 deliveries. *Journal of Vascular and Interventional Radiology* 2016; **26**: 1769–1776.
- Garin E, Rolland Y, Laffont S, Edeline J. Clinical impact of ^{99m}Tc-MAA SPECT/CT-based dosimetry in the radioembolization of liver malignancies with ⁹⁰Y-loaded microspheres. *European Journal of Nuclear and Medical Molecular Imaging* 2016; **43**: 559–575.
- Denys A, Pracht M, Duran R *et al.* How to prepare a patient for transarterial radioembolization? A practical guide. *Cardiovascular and Interventional Radiology* 2015; **38**: 794–805.
- Ahmadzadehfar H, Meyer C, Pieper CC *et al.* Evaluation of the delivered activity of yttrium-90 resin microspheres using sterile water and 5 % glucose during administration. *EJNMMI Research* 2015; **5**: 54.
- Högberg J, Rizell M, Hultborn R *et al.* Increased absorbed liver dose in Selective Internal Radiation Therapy (SIRT) correlates with increased sphere-cluster frequency and absorbed dose inhomogeneity. *EJNMMI Physics* 2015; **2**: 10.
- Ward TJ, Tamrazi A, Lam M *et al.* Management of high hepatopulmonary shunting in patients undergoing hepatic radioembolization. *Journal of Vascular and Interventional Radiology* 2015; **26**: 1751–1760.
- Shukla PA, Ahuja J, Kurli V *et al.* Gastric perforation following prophylactic embolization of right gastric and gastroduodenal arteries prior to selective internal radiation therapy. *Cardiovascular and Interventional Radiology* 2015; **38**: 1645–1648.
- Wissmeyer M, Delattre BM, Zaidi H *et al.* ⁹⁰Yttrium PET/MR-based dosimetry after liver radioembolization (SIRT). *Clinical Nuclear Medicine* 2015; **40**: 355–357.
- Willowson KP, Tapner M, QUEST Investigator Team, Bailey DL. A multicentre comparison of quantitative ⁹⁰Y PET/CT for dosimetric purposes after radioembolization with resin microspheres: The QUEST Phantom Study. *European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42**: 1202–1222.
- Piasecki P, Brzozowski K, Zięcina P *et al.* The use of ⁹⁰Y-PET imaging in evaluation of ⁹⁰Y-microspheres distribution in the liver: Initial results. *Nuclear Medicine Review* 2015; **18**: 92–96.
- Grosser OS, Ulrich G, Furth C *et al.* Intrahepatic activity distribution in radioembolization with yttrium-90-labeled resin microspheres using the body surface area method-a less than perfect model. *Journal of Vascular and Interventional Radiology* 2015; **26**: 1615–1621.
- Ilhan H, Goritschan A, Paprottka P *et al.* Predictive value of ^{99m}Tc-labelled MAA scintigraphy for ⁹⁰Y-microspheres distribution in radioembolization treatment with resin microspheres in primary and secondary hepatic tumors. *Journal of Nuclear Medicine* 2015; **56**: 1654–1660.

- Olufoladare G, Olorunsola OG, Kohi MP *et al.* Imaging predictors of elevated lung shunt fraction in patients being considered for yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2015; **26**: 1472–1478.
- Kalantzis G, Leventouri T, Apte A, Shang C. A computational tool for patient specific dosimetry and radiobiological modeling of selective internal radiation therapy with ⁹⁰Y microspheres. *Applied Radiation and Isotopes* 2015; **105**: 123–129.
- Kao YH, Goodwin M, Lee ST *et al.* Scientific basis of personalised tomographic radiation planning for radioembolisation: A form of brachytherapy planning. *Journal of Medical Imaging and Radiation Oncology* 2015; **59**: 617–618.
- Song YS, Paeng JC, Kim HC *et al.* PET/CT-based dosimetry in ⁹⁰Y-microsphere selective internal radiation therapy: Single cohort comparison with pretreatment planning on ^{99m}Tc-MAA imaging and correlation with treatment efficacy. *Medicine* 2015; **94**: e945.
- Paprottka PM, Paprottka KJ, Walter A *et al.* Safety of radioembolization with ⁹⁰Yttrium resin microspheres depending on coiling or no-coiling of aberrant/high-risk vessels. *Cardiovascular and Interventional Radiology* 2015; **38**: 946–956.
- Powerski M, Busse A, Seidensticker M *et al.* Prophylactic embolization of the cystic artery prior to radioembolization of liver malignancies-an evaluation of necessity. *Cardiovascular and Interventional Radiology* 2015; **38**: 678–684.
- Garin E. Radioembolization with ⁹⁰Y-loaded microspheres: High clinical impact of treatment simulation with MAA-based dosimetry. *European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42**: 1189–1191.
- Lam MG, Banerjee A, Goris ML *et al.* Fusion dual-tracer SPECT-based hepatic dosimetry predicts outcome after radioembolization for a wide range of tumour cell types. *European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42**: 1192–1201.
- Ilhan H, Goritschan A, Paprottka P *et al.* Systematic evaluation of tumoral ^{99m}Tc-MAA uptake using SPECT and SPECT/CT in 502 patients before ⁹⁰Y radioembolization. *The Journal of Nuclear Medicine* 2015; **56**: 333–338.
- Jernigan SR, Osborne JA, Mirek CJ, Buckner G. Selective internal radiation therapy: Quantifying distal penetration and distribution of resin and glass microspheres in a surrogate arterial model. *Journal of Vascular and Interventional Radiology* 2015; **26**: 897–904.
- Demirelli S, Erkilic M, Oner AO *et al.* Evaluation of factors affecting tumor response and survival in patients with primary and metastatic liver cancer treated with microspheres. *Nuclear Medicine Communications* 2015; **36**: 340–349.
- Lourenço V, Bobin C, Chisté V *et al.* Primary standardization of SIR-Spheres based on the dissolution of the ⁹⁰Y-labeled resin microspheres. *Applied Radiation and Isotopes* 2015; **97**:170–176.
- Peynircioğlu B, Hızal M, Çil B *et al.* Quantitative liver tumor blood volume measurements by a C-arm CT post-processing software before and after hepatic arterial embolization therapy: comparison with MDCT perfusion. *Diagnostic and Interventional Radiology* 2015; **21**: 71–77.
- Powerski MJ, Erxleben C, Scheurig-Münkler C *et al.* Hepatopulmonary shunting in patients with primary and secondary liver tumors scheduled for radioembolization. *European Journal of Radiology* 2015; **84**: 201–207.
- Smits MLJ, Elschot M, Sze DY *et al.* Radioembolization dosimetry: The road ahead. *Cardiovascular and Interventional Radiology* 2015; **38**: 261–269.
- Morshedi MM, Bauman M, Rose SC, Kikolski SG. Yttrium-90 resin microsphere radioembolization using an antireflux catheter: An alternative to traditional coil embolization for nontarget protection. *Cardiovascular and Interventional Radiology* 2015; **38**: 381–388
- Deipolyi AR, Zhu AX, Oklu R. Intratumoral vascular shunting: Biomarker of clinical outcome and source of circulating tumor cells? *American Journal of Clinical Oncology* 2015; **38**: 621–626.
- Högberg J, Rizell M, Hultborn R *et al.* Heterogeneity of microsphere distribution in resected liver and tumour tissue following selective intrahepatic radiotherapy. *EJNMMI Research* 2014; **4**: 48.
- Samim M, El-Haddad GE, Molenaar IQ *et al.* [¹⁸F]Fluorodeoxyglucose PET for interventional oncology in liver malignancy. *PET Clinics* 2014; **9**: 469–495.
- Tapp KN, Lea WB, Johnson MS *et al.* The impact of image reconstruction bias on PET/CT ⁹⁰Y dosimetry after radioembolization. *The Journal of Nuclear Medicine* 2014; **55**: 1452–1458.

- Sotirchos VS, Petre EN, Brown KT *et al.* Safe and successful yttrium-90 resin microsphere radioembolization in a heavily pretreated patient with chemorefractory colorectal liver metastases after biliary stent placement above the papilla. *Case Reports in Hepatology* 2014; **2014**: 921406.
- Kennedy A. Selective internal radiation therapy dosimetry. *Future Oncology* 2014; **10** (Suppl): 77–81.
- Kao YH, Luddington OS, Culleton SR *et al.* A gelatin liver phantom of suspended ⁹⁰Y resin microspheres to simulate the physiologic microsphere biodistribution of a postradioembolization liver. *Journal of Nuclear Medicine Technology* 2014; **42**: 265–268.
- Schelhorn J, Ertle J, Schlaak JF *et al.* Selective internal radiation therapy of hepatic tumors: procedural implications of a patent hepatic falciform artery. *SpringerPlus* 2014; **3**: 595.
- Fischman AM, Ward TJ, Patel RS *et al.* Prospective, randomized study of coil embolization versus surefire infusion system during yttrium-90 radioembolization with resin microspheres. *Journal of Vascular and Interventional Radiology* 2014; **25**: 1709–1716.
- Metyko J, Erwin W, Poston J Jr, Jimenez S. ⁹⁰Sr content in ⁹⁰Y-labeled SIR-Spheres and Zevalin. *Health Physics* 2014; **107** (5 Suppl 1): S177–S180.
- Pasciak AS, Bourgeois AC, Bradley YC. A comparison of techniques for ⁹⁰Y PET/CT image-based dosimetry following radioembolization with resin microspheres. *Frontiers in Oncology* 2014; **4**: 121.
- Sze DY, Lam MG. Reply to "the limitations of theoretical dose modeling for yttrium-90 radioembolization". *Journal of Vascular and Interventional Radiology* 2014; **25**: 1147–1148. [Comment on Lam MG *et al.* *Journal of Vascular and Interventional Radiology* 2014; **25**: 1085–1093.]
- Liu D, Klass D, Westcott M, Kennedy AS. The limitations of theoretical dose modeling for yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2014; **25**: 1146–1147. [Comment on Lam MG *et al.* *Journal of Vascular and Interventional Radiology* 2014; **25**: 1085–1093.]
- Bernardini M, Smadja C, Faraggi M *et al.* Liver selective internal radiation therapy with ⁹⁰Y resin microspheres: comparison between pre-treatment activity calculation methods. *Physica Medica* 2014; **30**: 752–764.
- Walrand S, Hesse M, Jamar F, Lhommel R. A hepatic dose-toxicity model opening the way toward individualized radioembolization planning. *The Journal of Nuclear Medicine* 2014; **55**: 1317–1322.
- Vesselle G, Petit I, Boucebci S *et al.* Radioembolization with yttrium-90 microspheres work up: Practical approach and literature review. *Diagnostic and Interventional Imaging* 2015; **96**: 547–562.
- Elschot M, Nijssen JF, Lam MG *et al.* ^{99m}Tc-MAA overestimates the absorbed dose to the lungs in radioembolization: a quantitative evaluation in patients treated with ¹⁶⁶Ho-microspheres. *European Journal of Nuclear Medicine & Molecular Imaging* 2014; **41**: 1965–1975.
- Sgouros G, Hobbs RF. Dosimetry for Radiopharmaceutical Therapy. *Seminars in Nuclear Medicine* 2014; **44**: 172–178.
- Pellerin O, Maleux G, Déan C *et al.* Microvascular plug: A new embolic material for hepatic arterial skeletonization. *Cardiovascular and Interventional Radiology* 2014; **37**: 1597–1601.
- Petitguillaume A, Bernardini M, Hadid L *et al.* Three-Dimensional personalized monte carlo dosimetry in ⁹⁰Y resin microspheres therapy of hepatic metastases: Nontumoral liver and lungs radiation protection considerations and treatment planning optimization. *Journal of Nuclear Medicine* 2014; **55**: 405–413.
- Schelhorn J, Theysohn J, Ertle J *et al.* Selective internal radiation therapy of hepatic tumours: Is coiling of the gastroduodenal artery always beneficial? *Clinical Radiology* 2014; **69**: 216–222.
- Lam MG, Louie JD, Abdelmaksoud M *et al.* Limitations of body surface area-based activity calculation for radioembolization of hepatic metastases in colorectal cancer. *Journal of Vascular and Interventional Radiology* 2014; **25**: 1085–1093.
- van den Hoven AF, Smits ML, Rosenbaum CE *et al.* The effect of intra-arterial angiotensin II on the hepatic tumor to non-tumor blood flow ratio for radioembolization: A systematic review. *PLoS One* 2014; **9**: e86394.
- Kao YH. Dosimetric theory for tumor-to-lung shunt fraction calculation in yttrium-90 radioembolization of noncirrhotic livers. *Nuclear Medicine Communications* 2014; **35**: 331–332.
- Eaton BR, Kim HS, Schreiber E *et al.* Quantitative dosimetry for yttrium-90 radionuclide therapy: Tumor dose predicts fluorodeoxyglucose positron emission tomography response in hepatic metastatic melanoma. *Journal of Vascular and Interventional Radiology* 2014; **25**: 288–295.
- Großer OS, Amthauer H, Ricke J. General theory of predictive dosimetry for Yttrium-90 radioembolization to sites other than the liver: Reply. *Cardiovascular and Interventional Radiology*

- 2014; **37**: 1120–1121. [Reply to Kao YH. *Cardiovascular and Interventional Radiology* 2014; **37**: 1114–1117.]
- Muyllé K, Vanderlinden B. Reply to letter re: General theory of predictive dosimetry for yttrium-90 radioembolization to sites other than the liver. *Cardiovascular and Interventional Radiology* 2014; **37**: 1118–1119. [Comment on Kao YH. *Cardiovascular and Interventional Radiology* 2014; **37**: 1114–1117.]
- Kao YH. General theory of predictive dosimetry for yttrium-90 radioembolization to sites other than the liver. *Cardiovascular and Interventional Radiology* 2014; **37**: 1114–1117. [Comment on Ricke J *et al.* *Cardiovascular and Interventional Radiology* 2013; **36**: 1664–1669.]
- Ahmadzadehfar H, Haslerud T, Reichmann K *et al.* Residual activity after radioembolization of liver tumours with ⁹⁰Y resin microspheres. A safe calculation method. *Nuklearmedizin* 2014; **53**: 95–98.
- Meyer C, Pieper CC, Ezziddin S *et al.* Feasibility of temporary protective embolization of normal liver tissue using degradable starch microspheres during radioembolization of liver tumours. *European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41**: 231–237.
- Bulla K, Hubich S, Pech M *et al.* Superiority of proximal embolization of the gastroduodenal artery with the Amplatzer Vascular Plug 4 before yttrium-90 radioembolization: A retrospective comparison with coils in 134 patients. *Cardiovascular and Interventional Radiology* 2014; **37**: 396–404.
- Piana PM, Bar V, Doyle L *et al.* Early arterial stasis during resin-based yttrium-90 radioembolization: incidence and preliminary outcomes. *HPB (Oxford)* 2014; **16**: 336–341.
- van den Hoven AF, Prince JF, Samim M *et al.* Posttreatment PET-CT-confirmed intrahepatic radioembolization performed without coil embolization, by using the antireflux Surefire Infusion System. *Cardiovascular and Interventional Radiology* 2014; **37**: 523–528.
- Amthauer H, Ulrich G, Grosser OS, Ricke J. Reply: Pretreatment dosimetry in HCC radioembolization with ⁹⁰Y glass microspheres cannot be invalidated with a bare visual evaluation of ^{99m}Tc-MAA uptake of colorectal metastases treated with resin microspheres. *The Journal of Nuclear Medicine* 2014; **55**: 1216–1218. [Comment on Ulrich *et al.* *Journal of Nuclear Medicine* 2013; **54**: 516–522.]
- Chiesa C, Lambert B, Maccauro M *et al.* Pretreatment dosimetry in HCC radioembolization with ⁹⁰Y glass microspheres cannot be invalidated with a bare visual evaluation of ^{99m}Tc-MAA uptake of colorectal metastases treated with resin microspheres. *The Journal of Nuclear Medicine* 2014; **55**: 1215–1216. [Comment on Ulrich *et al.* *Journal of Nuclear Medicine* 2013; **54**: 516–522.]
- Lam MG, Wondergem M, Elschot M, Smits ML. Reply: A clinical dosimetric perspective uncovers new evidence and offers new insight in favor of ^{99m}Tc-macroaggregated albumin for predictive dosimetry in ⁹⁰Y resin microsphere radioembolization. *Journal of Nuclear Medicine* 2013; **54**: 2192–2193. [Reply to Kao YH. *Cardiovascular and Interventional Radiology* 2013; **54**: 2191–2192.]
- Kao YH. A clinical dosimetric perspective uncovers new evidence and offers new insight in favor of ^{99m}Tc-macroaggregated albumin for predictive dosimetry in ⁹⁰Y resin microsphere radioembolization. *Journal of Nuclear Medicine* 2013; **54**: 2191–2192. [Comment on Wondergem M *et al.* *Journal of Nuclear Medicine* 2013; **54**: 1294–1301.]
- Maleux G, Wolter P, Vanslebrouck R, Deroose C. Unexpected ischemic complication after proximal coil embolization of a replaced left hepatic artery before yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2013; **24**: 1745–1747.
- Decaire R. Question on long-lived impurities of yttrium-90 labeled microspheres. *Health Physics* 2013; **105** (5 Suppl 2): S189.
- Lam MG, Goris ML, Iagaru AH *et al.* Prognostic utility of ⁹⁰Y radioembolization dosimetry based on fusion ^{99m}Tc-macroaggregated albumin-^{99m}Tc-sulfur colloid SPECT. *Journal of Nuclear Medicine* 2013; **54**: 2055–2061.
- Ng SC, Lee VH, Law MW *et al.* Patient dosimetry for ⁹⁰Y selective internal radiation treatment based on ⁹⁰Y PET imaging. *Journal of Applied Clinical and Medical Physics* 2013; **14**: 4371. Zade AA, Rangarajan V, Purandare NC *et al.* ⁹⁰Y microsphere therapy: Does ⁹⁰Y PET/CT imaging obviate the need for ⁹⁰Y Bremsstrahlung SPECT/CT imaging? *Nuclear Medicine Communications* 2013; **34**: 1090–1096.
- Palmowski M, Goedicke A, Vogg A *et al.* Simultaneous dual-isotope SPECT/CT with ^{99m}Tc- and ¹¹¹In-labelled albumin microspheres in treatment planning for SIRT. *European Radiology* 2013; **23**: 3062–3070.
- Kao Y-H, Steinberg JD, Tay Y-S *et al.* Post-radioembolization yttrium-90 PET/CT - part 2: dose-response and tumor predictive dosimetry for resin microspheres. *EJNMMI Research* 2013; **3**: 57.

- Lam MG, Abdelmaksoud MH, Chang DT *et al.* Safety of ⁹⁰Y radioembolization in patients who have undergone previous external beam radiation therapy. *International Journal of Radiation Oncology, Biology and Physics* 2013; **87**: 323–329.
- van den Hoven AF, Prince JF, Samim M *et al.* Erratum to: Posttreatment PET-CT-confirmed intrahepatic radioembolization performed without coil embolization, by using the antireflux Surefire Infusion System. *Cardiovascular and Interventional Radiology* 2013; **36**: 1721.
- Dieudonné A, Hobbs RF, Lebtahi R *et al.* Study of the impact of tissue density heterogeneities on 3-dimensional abdominal dosimetry: Comparison between dose kernel convolution and direct Monte Carlo methods. *Journal of Nuclear Medicine* 2013; **54**: 236–243.
- Maleux G, Deroose C, Fieuids S *et al.* Prospective comparison of hydrogel-coated microcoils versus fibered platinum microcoils in the prophylactic embolization of the gastroduodenal artery before Yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2013; **24**: 797–803.
- Enriquez J, Javadi S, Murthy R *et al.* Gastroduodenal artery recanalization after transcatheter fibered coil embolization for prevention of hepaticoenteric flow: Incidence and predisposing technical factors in 142 patients. *Acta Radiologica* 2013; **54**: 790–794.
- Hagspiel KD, Nambiar A, Hagspiel LM *et al.* Temporary arterial balloon occlusion as an adjunct to yttrium-90 radioembolization. *Cardiovascular and Interventional Radiology* 2013; **36**: 809–813.
- Rose SC, Kikolski SG, Chomas JE. Downstream hepatic arterial blood pressure changes caused by deployment of the Surefire AntiReflux Expandable Tip. *Cardiovascular and Interventional Radiology* 2013; **36**: 1262–1269.
- Gil-Alzugaray B, Chopitea A, Iñarrairaegui M *et al.* Prognostic factors and prevention of radioembolization-induced liver disease. *Hepatology* 2013; **57**: 1078–1087.
- Samuelson SD, Louie JD, Sze DY *et al.* N-butyl cyanoacrylate glue embolization of arterial networks to facilitate hepatic arterial skeletonization before radioembolization. *Cardiovascular and Interventional Radiology* 2013; **36**: 690–698.
- Goedicke A, Berker Y, Verburg F *et al.* Study-parameter impact in quantitative 90-Yttrium PET imaging for radioembolization treatment monitoring and dosimetry. *IEEE Transactions in Medical Imaging* 2013; **32**: 485–492.
- López-Benítez R, Hallscheidt P, Kratochwil C *et al.* Protective embolization of the gastroduodenal artery with a one-hydrocoil technique in radioembolization procedures. *Cardiovascular and Interventional Radiology* 2013; **36**: 105–110.
- Uliel L, Royal HD, Darcy MD *et al.* From the angio suite to the γ-camera: Vascular mapping and ^{99m}Tc-MAA hepatic perfusion imaging before liver radioembolization--A comprehensive pictorial review. *Journal of Nuclear Medicine* 2012; **53**: 1736–1747.
- Roche G, Teo TK, Tan AE *et al.* Intra-arterial CT angiography visualization of arterial supply to inferior vena cava tumor thrombus prior to radioembolization of hepatocellular carcinoma. *Saudi Journal of Gastroenterology* 2012; **18**: 384–387
- Högberg J, Rizell M, Hultborn R *et al.* Radiation exposure during liver surgery after treatment with ⁹⁰Y microspheres, evaluated with computer simulations and dosimeter measurements. *Journal of Radiological Protection* 2012; **32**: 439–446.
- Helmberger T. Overview of selective internal radiation therapy: from work-up to follow-up. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 48–50.
- Kennedy A. Calculating yttrium-90 activity with clinical considerations. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 59–61.
- Ahmadzadehfar H, Sabet A, Meyer C *et al.* The importance of Tc-MAA SPECT/CT for therapy planning of radioembolization in a patient treated with bevacizumab. *Clinical and Nuclear Medicine* 2012; **37**: 1129–1130.
- Paxton AB, Davis SD, Dewerd LA *et al.* Determining the effects of microsphere and surrounding material composition on ⁹⁰Y dose kernels using egsnrc and mcnp5. *Medical Physics* 2012; **39**: 1424–1434.
- Van de Wiele C, Maes A, Brugman E *et al.* SIRT of liver metastases: Physiological and pathophysiological considerations. *European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39**: 1646–1655.

- Tapping CR, Dixon S, Little MW *et al.* Liquid embolization of the gastroduodenal artery before selective internal radiotherapy (SIRT). *Clinical Radiology* 2012; **67**: 789–792.
- Kleinstreuer C, Basciano CA, Childress EM *et al.* A new catheter for tumor targeting with radioactive microspheres in representative hepatic artery systems. Part I: Impact of catheter presence on local blood flow and microsphere delivery. *Journal of Biomechanical and Engineering* 2012; **134**: 051004.
- Powerski MJ, Scheurig-Münkler C, Banzer J *et al.* Clinical practice in radioembolization of hepatic malignancies: A survey among interventional centers in Europe. *European Journal of Radiology* 2012; **81**: e804–811.
- Gaba RC, Vanmiddlesworth KA. Chemoembolic hepatopulmonary shunt reduction to allow safe Yttrium-90 radioembolization lobectomy of hepatocellular carcinoma. *Cardiovascular and Interventional Radiology* 2012; **35**: 1505–1511.
- Gaba RC, Parvinian A, Trinos EM *et al.* Safety and efficacy of StarClose SE Vascular Closure System in high-risk liver interventional oncology patients. *Journal of Vascular Access* 2012; **13**: 415–420.
- McCann JW, Larkin AM, Martino LJ *et al.* Radiation emission from patients treated with selective hepatic radioembolization using yttrium-90 microspheres: Are contact restrictions necessary? *Journal of Vascular and Interventional Radiology* 2012; **23**: 661–667.
- Dieudonné A, Gardin I, Reguiga M *et al.* Dosimétrie personnalisée en radiothérapie interne vectorisée: Exemple du traitement des carcinomes hépatocellulaires par microsphères marquées à l'yttrium 90. [Personalized dosimetry in targeted radionuclide therapy: Example in the treatment of hepatocellular carcinoma with yttrium labelled microspheres]. *Médecine Nucléaire* 2012; **36**: 215–221. [in French]
- D'Arienzo M, Chiamida P, Chiacchiararelli L *et al.* ⁹⁰Y PET-based dosimetry after selective internal radiotherapy treatments. *Nuclear Medicine Communications* 2012; **33**: 633–640.
- Kao YH, Tan AEH, Burgmans MC *et al.* Image-guided personalized predictive dosimetry by artery-specific SPECT/CT partition modeling for safe and effective ⁹⁰Y radioembolization. *Journal of Nuclear Medicine* 2012; **53**: 1–8.
- Richards AL, Kleinstreuer C, Kennedy AS *et al.* Experimental microsphere targeting in a representative hepatic artery system. *IEEE Transactions on Biomedical Engineering* 2012; **59**: 198–204.
- Lau WY, Kennedy AS, Kim YH *et al.* Patient selection and activity planning guide for selective internal radiotherapy with yttrium-90 resin microspheres. *International Journal of Radiation Oncology, Biology and Physics* 2012; **82**: 401–407.
- Yildiz AE, Peynircioglu B, Cil BE. Applications of the Amplatzer Vascular Plug 4. *Diagnostic and Interventional Radiology* 2012; **18**: 225–230.
- Kao YH, Tan AE, Ng DC, Goh AS. Response to "Patient selection and activity planning guide for selective internal radiotherapy with yttrium-90 resin microspheres." *International Journal of Radiation Oncology, Biology and Physics* 2011; **80**: 1280. [Comment on Lau WY *et al.* *International Journal of Radiation Oncology, Biology and Physics* 2010 Oct 13; later published as 2012; **82**: 401–407.]
- Lau WY, Kennedy AS, Kim YH *et al.* In reply to Dr. Kao *et al.* *International Journal of Radiation Oncology, Biology and Physics* 2011; **80**: 1280–1281.
- Dezarn WA, Cessna JT, DeWerd LA *et al.* Recommendations of the American Association of Physicists in Medicine on dosimetry, imaging, and quality assurance procedures for ⁹⁰Y microsphere brachytherapy in the treatment of hepatic malignancies. *Medical Physics* 2011; **38**: 4824–4845.
- Dudeck O, Wilhelmsen S, Stübs P *et al.* Prevention of intraprocedural puncture site bleeding during arterial port implantation by use of a suture-mediated arterial closure system: A prospective randomized trial. *Journal of Vascular and Interventional Radiology* 2011; **22**: 1409–1413.
- Jiang M, Nowakowski FS, Wang J *et al.* Characterization of extrahepatic distribution of Tc-99m macroaggregated albumin in hepatic perfusion imaging studies prior to yttrium-90 microsphere therapy. *Cancer Biotherapy and Radiopharmaceuticals* 2011; **26**: 511–518.
- Liu DM. Interventional oncology – avoiding common pitfalls to reduce toxicity in hepatic radioembolization. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 106 ePub doi: 10.4172/2155-9619.1000106.

- Kennedy A, Dezarn W, Weiss A. Patient specific 3D image-based radiation dose estimates for ⁹⁰Y microsphere hepatic radioembolization in metastatic tumors. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 111 ePub doi: 10.4172/2155-9619.1000111.
- Basciano CA, Kleinstreuer C, Kennedy AS. Computational fluid dynamics modeling of ⁹⁰Y microspheres in human hepatic tumors. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 112 ePub doi: 10.4172/2155-9619.1000112.
- Strigari L, Benassi M, Chiesa C *et al.* Dosimetry in nuclear medicine therapy: radiobiology application and results. *Quarterly Journal of Nuclear Medicine and Molecular Imaging* 2011; **55**: 205–221.
- Sabet A, Ahmadzadehfar H, Muckle M *et al.* Significance of oral administration of sodium perchlorate in planning liver-directed radioembolization. *Journal of Nuclear Medicine* 2011; **52**: 1063–1067.
- Kao YH, Tan EH, Ng CE, Goh SW. Clinical implications of the body surface area method versus partition model dosimetry for yttrium-90 radioembolization using resin microspheres: a technical review. *Annals of Nuclear Medicine* 2011; **25**: 455–461.
- Giammarile F, Bodei L, Chiesa C *et al.* EANM procedure guideline for the treatment of liver cancer and liver metastases with intra-arterial radioactive compounds. *European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38**: 1393–1406.
- Bardiès M, Buvat I. Dosimetry in nuclear medicine therapy: what are the specifics in image quantification for dosimetry? *Quarterly Journal of Nuclear Medicine and Molecular Imaging* 2011; **55**: 5–20.
- Chiesa C, Maccauro M, Romito R *et al.* Need, feasibility and convenience of dosimetric treatment planning in liver selective internal radiation therapy with ⁹⁰Y microspheres: the experience of the National Tumor Institute of Milan. *Quarterly Journal of Nuclear Medicine and Molecular Imaging* 2011; **55**: 168–197.
- Kao YH, Tan AE, Khoo LS *et al.* Hepatic falciform ligament Tc-99m-macroaggregated albumin activity on SPECT/CT prior to Yttrium-90 microsphere radioembolization: prophylactic measures to prevent non-target microsphere localization via patent hepatic falciform arteries. *Annals of Nuclear Medicine* 2011; **25**: 365–369.
- Barentsz MW, Vente MA, Lam MG *et al.* Technical solutions to ensure safe Yttrium-90 radioembolization in patients with initial extrahepatic deposition of ^{99m}Tc-technetium-albumin macroaggregates. *Cardiovascular and Interventional Radiology* 2011; **34**: 1074–1079.
- McWilliams JP, Kee ST, Loh CT *et al.* Prophylactic embolization of the cystic artery before radioembolization: feasibility, safety, and outcomes. *Cardiovascular and Interventional Radiology* 2011; **34**: 786–792.
- Liu CS, Lin KH, Lee RC *et al.* Model-based radiation dose correction for yttrium-90 microsphere treatment of liver tumors with central necrosis. *International Journal of Radiation Oncology, Biology and Physics* 2011; **81**: 660–668.
- Dudeck O, Bulla K, Wieners G *et al.* Embolization of the gastroduodenal artery before selective internal radiotherapy: A prospectively randomized trial comparing standard pushable coils with fibered interlock detachable coils. *Cardiovascular and Interventional Radiology* 2011; **34**: 74–80.
- Karunanithy N, Gordon F, Hodolic M *et al.* Embolization of hepatic arterial branches to simplify hepatic blood flow before yttrium 90 radioembolization: a useful technique in the presence of challenging anatomy. *Cardiovascular and Interventional Radiology* 2011; **34**: 287–294.
- Maleux G, Heye S, Vaninbrouckx J, Deroose C. Angiographic considerations in patients undergoing liver-directed radioembolization with ⁹⁰Y microspheres. *Acta Gastro-Enterologica Belgica* 2010; **73**: 489–496.
- Lambert B, Mertens J, Sturm EJ *et al.* ^{99m}Tc-labelled macroaggregated albumin (MAA) scintigraphy for planning treatment with ⁹⁰Y microspheres. *European Journal of Nuclear Medicine and Molecular Imaging* 2010; **37**: 2328–2333.
- Kim YC, Kim YH, Um SH *et al.* Radiation safety issues in Y-90 microsphere selective hepatic radioembolization therapy: possible radiation exposure from the patients. *Nuclear Medicine and Molecular Imaging* 2010; **44**: 252–260.
- Wang SC, Bester L, Burnes JP *et al.* Clinical care and technical recommendations for ⁹⁰yttrium microsphere treatment of liver cancer. *Journal of Medical Imaging and Radiation Oncology* 2010; **54**: 178–187.

- Haydar AA, Wasan H, Wilson C, Tait P. ^{90}Y radioembolization: embolization of the gastroduodenal artery is not always appropriate. *Cardiovascular and Interventional Radiology* 2010; **33**: 1069–1071.
- Basciano CA, Kleinstreuer C, Kennedy AS *et al.* Computer modeling of controlled microsphere release and targeting in a representative hepatic artery system. *Annals of Biomedical Engineering* 2010; **38**: 1862–1867.
- Gulec SA, Szejnberg ML, Siegel JA *et al.* Hepatic structural dosimetry in ^{90}Y microsphere treatment: A Monte Carlo modeling approach based on lobular microanatomy. *Journal of Nuclear Medicine* 2010; **51**: 301–310.
- Bilbao JI, Garrastachu P, Herráiz MJ *et al.* Safety and efficacy assessment of flow redistribution by occlusion of intrahepatic vessels prior to radioembolization in the treatment of liver tumors. *Cardiovascular and Interventional Radiology* 2010; **33**: 523–531.
- Kennedy AS, Kleinstreuer C, Basciano CA, Dezarn WA. Computer modeling of yttrium-90-microsphere transport in the hepatic arterial tree to improve clinical outcomes. *International Journal of Radiation Oncology, Biology and Physics* 2010; **76**: 631–637.
- Yu M, Lewandowski RJ, Ibrahim S *et al.* Direct hepatic artery puncture for transarterial therapy in liver cancer. *Journal of Vascular and Interventional Radiology* 2010; **21**: 394–399.
- Narayanan G, Hanumanthaiah S, Mohin G *et al.* Safety and efficacy of the Angio-Seal closure device. *Journal of Interventional Oncology* 2009; **2**: 128–132.
- Pech M, Kraetsch A, Wieners G *et al.* Embolization of the gastroduodenal artery before selective internal radiotherapy: a prospectively randomized trial comparing platinum-fibered microcoils with the Amplatzer Vascular Plug II. *Cardiovascular and Interventional Radiology* 2009; **32**: 455–461.
- Gulec SA, Selwyn R, Weiner R *et al.* Radiomicrosphere therapy: nuclear medicine considerations, guidelines, and protocols. *Journal of Interventional Oncology* 2009; **2**: 26–39.
- Salem R, Riaz A, Gulec S *et al.* Technical issues in radioembolization with yttrium 90 microspheres. *Journal of Interventional Oncology* 2009; **2**: 40–45.
- Selwyn R. Radiomicrosphere therapy dosimetry. *Journal of Interventional Oncology* 2009; **2**: 59–66.
- Wagman R, Apollon S, Garelik I *et al.* Starting an yttrium 90 treatment program for metastatic cancer to the liver. *Journal of Interventional Oncology* 2009; **2**: 67–71.
- Bilbao JI, de Martino A, de Luis E *et al.* Biocompatibility, inflammatory response, and recanalization characteristics of nonradioactive resin microspheres: Histological findings. *Cardiovascular and Interventional Radiology* 2009; **32**: 727–736.
- Rose SC. Mechanical devices for arterial occlusion and therapeutic vascular occlusion utilizing steel coil technique: clinical applications. *American Journal of Roentgenology* 2009; **192**: 321–324.
- Schleipman AR, Gallagher PW, Gerbaudo VH. Optimizing safety of selective internal radiation therapy (SIRT) of hepatic tumors with ^{90}Y resin microspheres: a systematic approach to preparation and radiometric procedures. *Health Physics* 2009; **96** (2 Suppl): S16–S21.
- Solomon SB, Thornton R, Deschamps F *et al.* A treatment planning system for transcatheter hepatic therapies: Pilot study. *Journal of Interventional Oncology* 2008; **1**: 12–18.
- Gulec SA. Considerations in Y-90 microsphere administration via hepatic arterial pump. *Journal of Interventional Oncology* 2008; **1**: 38–42.
- Hieb RA, Neisen MJ, Hohenwalter EJ *et al.* Safety and effectiveness of repeat arterial closure using the AngioSeal device in patients with hepatic malignancy. *Journal of Vascular and Interventional Radiology* 2008; **19**: 1704–1708.
- Cremonesi M, Ferrari M, Bartolomei M *et al.* Radioembolisation with ^{90}Y -microspheres: dosimetric and radiobiological investigation for multi-cycle treatment. *European Journal of Nuclear Medicine and Molecular Imaging* 2008; **35**: 2088–2096.
- Selwyn R, Micka J, DeWerd L *et al.* Technical note: the calibration of ^{90}Y -labeled SIR-Spheres using a non-destructive spectroscopic assay. *Medical Physics* 2008; **35**: 1278–1279.
- Avila-Rodriguez M, Selwyn R, Hampel J *et al.* Positron-emitting resin microspheres as surrogates of ^{90}Y SIR-Spheres: a radiolabeling and stability study. *Nuclear Medicine and Biology* 2007; **34**: 585–590.
- Salem R. Radioembolization with ^{90}Y microspheres: technical considerations. *Journal of Vascular and Interventional Radiology* 2007; **18**: 1460–1461.

- Denecke T, Rühl R, Hildebrandt B *et al.* Planning transarterial radioembolization of colorectal liver metastases with Yttrium 90 microspheres: evaluation of a sequential diagnostic approach using radiologic and nuclear medicine imaging techniques. *European Radiology* 2008; **18**: 892–902.
- Salem R, Lewandowski RJ, Sato KT *et al.* Technical aspects of radioembolization with ⁹⁰Y microspheres. *Techniques in Vascular and Interventional Radiology* 2007; **10**: 12–29.
- Selwyn RG, Avila-Rodriguez MA, Converse AK *et al.* ¹⁸F-labeled resin microspheres as surrogates for ⁹⁰Y resin microspheres used in the treatment of hepatic tumors: a radiolabeling and PET validation study. *Physics in Medicine and Biology* 2007; **52**: 7397–7408.
- Gulec SA and Siegel JA. Posttherapy radiation safety considerations in radiomicrosphere treatment with ⁹⁰Y-microspheres. *The Journal of Nuclear Medicine* 2007; **48**: 2080–2086.
- Bester L, Salem R. Reduction of arteriohepatovenous shunting by temporary balloon occlusion in patients undergoing radioembolization. *Journal of Vascular and Interventional Radiology* 2007; **18**: 1310–1314.
- Dezarn WA, Kennedy AS. Resin ⁹⁰Y microsphere activity measurements for liver brachytherapy. *Medical Physics* 2007; **34**: 1896–1900.
- Lewandowski RJ, Sato KT, Atassi B *et al.* Radioembolization with ⁹⁰Y microspheres: angiographic and technical considerations. *Cardiovascular and Interventional Radiology* 2007; **30**: 571–592.
- Cosin O, Bilbao JI, Alvarez S *et al.* Right gastric artery embolization prior to treatment with yttrium-90 microspheres. *Cardiovascular and Interventional Radiology* 2007; **30**: 98–103.
- Gulec S, Mesoloras G, Stabin M. Dosimetric techniques in ⁹⁰Y-microsphere therapy of liver cancer: The MIRDOSE equations for dose calculations. *Journal of Nuclear Medicine* 2006; **47**: 1209–1211.
- Mo L, Avci B, James D *et al.* Development of activity standard for ⁹⁰Y microspheres. *Applied Radiation and Isotopes* 2005; **63**: 193–199.
- Dhabuwala A, Lamerton P, Stubbs R. Relationship of ^{99m}Tc-labelled macroaggregated albumin (^{99m}Tc-MAA) uptake by colorectal liver metastases to response following Selective Internal Radiation Therapy (SIRT). *BMC Nuclear Medicine* 2005; **5**: 7.
- Murthy R, Nunez R, Szklaruk J *et al.* Yttrium-90 microsphere therapy for hepatic malignancy: Devices, indications, technical considerations, and potential complications. *Radiographics* 2005; **25**: S41–S55.
- Kennedy A, Nutting C, Coldwell D *et al.* Pathologic response and microdosimetry of ⁹⁰Y microspheres in man: review of four explanted whole livers. *International Journal of Radiation Oncology, Biology and Physics* 2004; **60**: 1552–1563.
- Moroz P, Anderson J, Van Hazel G *et al.* Effect of selective internal radiation therapy and hepatic arterial chemotherapy on normal liver volume and spleen volume. *Journal of Surgical Oncology* 2001; **78**: 248–252.
- Campbell A, Bailey I, Burton M. Tumour dosimetry in human liver following hepatic yttrium-90 microsphere therapy. *Physics in Medicine and Biology* 2001; **46**: 487–498.
- Campbell A, Bailey I, Burton M. Analysis of the distribution of intra-arterial microspheres in human liver following hepatic yttrium-90 microsphere therapy. *Physics in Medicine and Biology* 2000; **45**: 1023–1033.
- Halley S, Walker T, Gray B *et al.* Microsphere distribution within a metastatic liver tumour following selective internal radiation therapy. *GI Cancer* 2000; **3**: 193–197.
- Ho S, Lau W, Leung T *et al.* Clinical evaluation of the partition model for estimating radiation doses from yttrium-90 microspheres in the treatment of hepatic cancer. *European Journal of Nuclear Medicine* 1997; **24**: 293–298.
- Ho S, Lau W, Leung T *et al.* Tumor-to-normal uptake ratio of Y-90 microspheres in hepatic cancer assessed with Tc-99m macroaggregated albumin. *British Journal of Radiology* 1997; **70**: 823–828.
- Ho S, Lau W, Leung T *et al.* Partition model for estimating radiation doses from yttrium-90 microspheres in treating hepatic tumors. *European Journal of Nuclear Medicine* 1996; **23**: 947–952.
- Fox R, Klemp P, Egan G *et al.* Dose distribution following selective internal radiation therapy. *International Journal of Radiation Oncology, Biology and Physics* 1991; **21**: 463–467.
- Gray B, Matz L, Burton M *et al.* Tolerance of the liver to yttrium-90 irradiation. *International Journal of Radiation Oncology, Biology and Physics* 1990; **18**: 619–623.

- Burton M, Gray B, Kelleher D *et al.* Selective internal radiation therapy: Validation of intraoperative dosimetry. *Radiology* 1990; **175**: 253–255.
- Archer S, Gray B. Vascularization of small liver metastases. *British Journal of Surgery* 1989; **76**: 545–548.
- Burton M, Gray B, Klemp P *et al.* Selective internal radiation therapy: Distribution of radiation in the liver. *European Journal of Cancer and Clinical Oncology* 1989; **25**: 1487–1491.
- Klemp P, Perry A, Fox R *et al.* Aspects of radiation protection during the treatment of liver cancer using yttrium-90 labeled microspheres. *Radiation Protection in Australia* 1989; **7**: 70–73.
- Russel JL, Carden JL, Herron HL. Dosimetry calculations for Yttrium-90 used in the treatment of liver cancer. *Endocurietherapy/Hyperthermia Oncology* 1988; **4**: 171–186.
- Chamberlain M, Gray B, Heggie J *et al.* Hepatic metastases: A physiological approach to treatment. *British Journal of Surgery* 1983; **70**: 596–598.
- Stribley K, Gray B, Chmiel R *et al.* Internal radiotherapy for hepatic metastases: The homogeneity of hepatic arterial blood flow. *Journal of Surgical Research* 1983; **33**: 17–24.
- Stribley K, Gray B, Chmiel R *et al.* Internal radiotherapy for hepatic metastases: The blood supply of hepatic metastases. *Journal of Surgical Research* 1983; **33**: 25–32.
- Breedis C, Young G. The blood supply of neoplasms in the liver. *American Journal of Pathology* 1954; **30**: 969–977.
- Lucke B, Breedis C, Woo ZP *et al.* Differential growth of metastatic tumors in liver and lung; experiments with rabbit V2 carcinoma. *Cancer Research* 1952; **12**: 734–738.

Abstracts on Mechanistic Aspects of Treatment

- Walker MD, Porter CA, McGowan DR. PET Imaging for Y-90 SIRT: effect of liver motion on dosimetry. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP457.
- Tanyildizi H, Demir M, Abuqebitah M *et al.* Evaluation of radiation exposure dose rates: a comparative study between the two commercially available Y-90 microsphere products TheraSphere and SIR-Spheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP808.
- Thyroff A, Sanders JC, Kuwert T *et al.* Differences between free-breathing and breath-hold CT for application in SIRT dosimetry. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. OP018.
- Samim M, van Veenendaal LM, Braat MNGJ *et al.* Recommendations for radioembolization after liver surgery using yttrium-90 resin microspheres: an international consensus panel report. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP136.
- Richetta E, Manfredi M, Pasquino M *et al.* Comparison of dosimetric methods in ⁹⁰Y microspheres hepatic radioembolization related to dose-response evaluation. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP464.
- Parikh PJ, Maughan N, Weiner A *et al.* Clinical impact of PET/MRI dosimetry after radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP132.
- Moran V, Prieto E, Zubiria A *et al.* Personalized dosimetry planning in radioembolization with ⁹⁰Y-microspheres: methodological considerations. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP470.
- Levillain H, Marin G, Vanderlinden B *et al.* Quality assurance of activity administration in selective internal radiation therapy (SIRT). *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP465.
- Hemmingsson J, Högberg J, Svensson J *et al.* Simulation of ⁹⁰Y microspheres in selective internal radiation therapy (SIRT) reveals different heterogeneity profiles for glass and resin microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EPW48.

- Divoli A, Gear J, Murray I, Flux G. Effect of activity heterogeneity on the absorbed doses from ^{90}Y therapies. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EPW51.
- Craig AJ, Murray I, Denis-Bacelar A *et al.* A voxel-based correction method to allow quantitative dosimetry comparisons of pre- and post-therapy imaging in ^{90}Y -microsphere treatments. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP459.
- Botta F, De Nile M, Vitali S *et al.* The impact of missing attenuation or scatter correction on $^{99\text{m}}\text{Tc}$ MAA SPECT based dosimetry for ^{90}Y microsphere liver radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP460.
- McBeth R, Elder D, Kesner A. SU-F-J-182: Investigation of systems for improved accuracy in clinical Y-90 percent delivered calculations. *Medical Physics* 2016; **43**: 3450
- Bishay V, Fischman A, Biederman D *et al.* Impact of vessel identification and guidance software on fluoroscopy time during planning angiography prior to ^{90}Y radioembolization segmentectomy. Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, *Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S64 Abs. 134.
- Kim K., Burke C, Isaacson A *et al.* Aborted yttrium 90 radioembolization in patients with hepatocellular carcinoma after mapping hepatic arteriography and lung shunt study. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S68 Abs. 143.
- Pryor W, Bourgeois A, Guimaraes M *et al.* Radial access for liver-directed therapy: A single center prospective study. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S196 Abs.437.
- Mahvash A, Mikell J, Siman W *et al.* Quantifying differences in tumor uptake between planning $^{99\text{m}}\text{Tc}$ -MAA and post-therapy ^{90}Y microsphere SPECT/CT using the balloon occlusion technique for common hepatic artery administration. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S111-112 Abs. 243.
- Masrani A, Turba U, Tasse J *et al.* Aggressive shunt reduction technique prior to radioembolization. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2016; **27**: 785.e32 Abs
- Olsen J, Savin M, Campbell J *et al.* Yttrium-90 radioembolization deliveries: Incidence and role of multiple deliveries during single procedures. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2016; **27**: 785.e32 Abs.
- Rose S, Rose S, Narsinh K, Newton I. Estimation of vascular bed embolic saturation when using an anti-reflux catheter: drug eluting bead chemoembolization vs yttrium-90 radioembolization. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S36 Abs. 71.
- Naydenov A, Harris W, Johnson G *et al.* Tumor vascularity does not predict the response of colorectal cancer liver metastases to yttrium-90 radioembolization. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S62–S63 Abs. 131.
- Mauxion T, Fischer A, Dreher M, R. Salem R. Dosimetric analysis of ^{90}Y glass and resin microsphere distributions in hepatic tumors: from the microsphere coverage to the absorbed dose. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S61 Abs. 128.
- Kokabi N, Camacho J, Schuster D *et al.* Estimating differences in ^{90}Y dosimetry in patients with intrahepatic cholangiocarcinoma treated with resin-based and glass-based microspheres by a simple semi-quantitative method. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S155 Abs. 342.
- da Costa LG, Santos JAM, Gonçalves B *et al.* Response evaluation criteria in solid tumours (RECIST) in a group of patients submitted to Y-90 resin microspheres radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. PW118.

- Prince J, Lam MGEH, de Wit N, de Roos RR *et al.* ^{99m}Tc -MAA preparation for radioembolization; from just-in-time to just-in-case. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. P309.
- Ardisson V, Lepareur N, Garin E. In vitro stability study of 90 yttrium-microsphere for the treatment of hepatocellular carcinoma. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. P304.
- D'Arienzo M, Tapner M, Spezi E *et al.* Comparison of absorbed dose calculations for non-uniform activity distributions obtained via ^{90}Y -PET/CT after liver radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. PW120.
- Abbott EM, Craig AJ, Franklin JM *et al.* NTCP calculations for Selective Internal RadioTherapy (SIRT) - demonstration of the methodology. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. PW101.
- Chiesa C, Mira M, Maccauro M *et al.* The intrinsic absorbed dose resolution concept in voxel dosimetry - Application to ^{90}Y microsphere radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP613.
- Finessi M, Gallio E, Richetta E *et al.* Comparison of different dosimetric methods for tumor and normal tissue predicted absorbed dose calculation in liver radioembolization: preliminary results. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP575.
- Bernardini M, Thevenet H, Berthold C *et al.* Reconstruction, volumetry and dosimetry optimisation for ^{99m}Tc -SPECT and ^{90}Y -PET images: towards reliable DVH for SIRT treatments. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP335.
- Högberg J, Rizell M, Hultborn R *et al.* A branching artery tree model in concordance with microscopy observations of microsphere distribution in liver following radioembolisation. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP334.
- Dieudonné A, Siebert A, Abdel-Rehim M *et al.* Feasibility and safety of selective internal radiation therapy (SIRT) procedure in one day. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP332.
- Sanders JC, Vija AH, Kuwert T *et al.* Effect of data-driven respiratory gating on radioactivity quantification in liver lesions for pre-radioembolization Tc-99m-MAA SPECT/CT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP331.
- Pacilio M, Chiesa C, Ferrari ME *et al.* Previsional dosimetry based on ^{99m}Tc -MAA SPECT for radioembolization of liver lesions with ^{90}Y -loaded microspheres: impact of attenuation correction, scatter correction and calibration. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP330.
- Prince J, van den Hoven AF, Krijger GC *et al.* ^{99m}Tc -MAA SPECT/CT lung shunt estimations are more accurate than those obtained from planar scintigraphy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP329.
- Grigolini A, Mantarro A, Lauretti DL *et al.* ^{90}Y -radioembolization of hypovascular liver lesions: Role of cone-beam CT. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2015; Abs. P-291.
- Hardman RL, Enniss T, O'Hara R. Case-control retrospective comparison of the incidence of cholecystitis using standard microcatheter techniques versus flow-directed catheter (Surefire). *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 79.
- Patil VV, Patel RS, Tabori NE *et al.* Safety and feasibility of selective internal radiation therapy planning using a left transradial access without conscious sedation. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 39.

- Tong R, Kohi M, Olorunsola D *et al.* Tc-99m MAA liver perfusion scan prior to ⁹⁰Y radioembolization: Lung shunt fraction and beyond? *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Poster 37.
- Prince J, van den Hoven A, Slijderink S *et al.* C-arm CT during radioembolization requires a specialized protocol: Optimization for extrahepatic shunting and parenchymal enhancement. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Poster 24.
- Gordon AC, Gates VL, White SB *et al.* ⁹⁰Y PET/CT dosimetry after radioembolization in rabbit VX2 liver tumor model: Comparisons to MIRD calculations and *ex vivo* microsphere uptake. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Paper 32.
- Stanborough R, Bourgeois AC, Bradley YC *et al.* The effect of anti-reflux catheters on pulmonary shunt fraction in patients with hepatocellular carcinoma. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Paper 28.
- Prince J, van Rooij R, de Jong H *et al.* Does extrahepatic deposition preclude radioembolization, or is the extrahepatic radiation dose not harmful? *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2015*; **26** (Suppl): S88 Abs. 188.
- Mikell J, Mahvash A, Mourtada F *et al.* Implications of four different voxel-based dosimetry models for liver and lung following ⁹⁰Y microsphere therapy. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2015*; **26** (Suppl): S190 Abs. 435.
- Hardman R, O'Hara R, Crawford H *et al.* Comparison of cone beam CT angiography to preprocedural CT or MRI for yttrium-90 hepatic dosimetry. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2015*; **26** (Suppl): S120 Abs. 262.
- Goldin D, George D, Chen C *et al.* Incomplete yttrium-90 infusion and high residual radioactivity during radioembolization. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2015*; **26** (Suppl): S111 Abs. 240.
- Chehab M, Savin MA, Campbell J *et al.* Yttrium-90 infusion: Incidence and outcomes of delivery system occlusions. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2015*; **26** (Suppl): S110 Abs. 239.
- Morgan R, Smith M, Robinson A *et al.* Differences in radiation dose of glass versus resin embolization beads. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2015*; **26** (Suppl): S110 Abs. 238.
- Bourgeois AC, Bradley YC, McElmurray J *et al.* Does the number of infused microspheres impact tumor dose in radioembolization? An analysis of resin versus glass yttrium-90 microspheres. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2015*; **26** (Suppl): S111 Abs. 241.
- Veltchev I, Fourkal E, Doss M *et al.* Physical aspects and clinical applications of post-treatment yttrium-90 PET-based dosimetry. *American Association of Physicists in Medicine Annual Meeting, Medical Physics 2015*; **42**: 3537 Abs. SU-F-BRA-15.
- Maneru F, Otal A, Gracia M *et al.* ⁹⁰Y Microspheres dosimetry calculation with Voxel-S-Value method: A simple use in the clinic. *American Association of Physicists in Medicine Annual Meeting, Medical Physics 2015*; **42**: 3330 Abs. SU-E-T-02.
- Scott CJ, Kalogianni E, Livieratos L *et al.* Quantitative comparison of dose distribution between ^{99m}Tc-MAA and ⁹⁰Y-microspheres for selective internal radiotherapy (SIRT). *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2014*; **41** (Suppl 2): Abs. PW058.
- Walrand S, Hesse M, Lhommel R, Jamar R. Dedicated bremsstrahlung static SPECT for fast dosimetry assessment during liver radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2014*; **41** (Suppl 2): Abs. OP358.
- Terulla A, Bergesio F, Roberto E *et al.* Treatment planning experience in radioembolization of hepatocarcinoma with ⁹⁰Y microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2014*; **41** (Suppl 2): Abs. PW044.

Staanum PF. Partition model for radiation dose calculation in Y-90 radioembolization of multiple tumors. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. P662.

Lee S, Won J, Kim I *et al.* Measurement of radiation exposure dose during yttrium-90 radioembolization of hepatocellular carcinoma. *Society of Interventional Radiology (SIR) 39th Annual Scientific Meeting. Journal of Vascular and Interventional Radiology* 2014; **25** (Suppl): S90–S91 Abs. 190.

Kappadath S, Mikell J, Baladandayuthapani V *et al.* Hepatocellular carcinoma tumor response using voxel-based dosimetry following ⁹⁰Y-microsphere therapy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP361.

Kabnurkar R, Zade A, Kulkarni S *et al.* Role of FDG PET-CT in prognostication of hepatocellular carcinoma patients undergoing transarterial radioembolisation. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP428.

Huizing DMV, Blokland JAK, Younis I. Predictive value of ^{99m}Tc-MAA SPECT-CT scans for the distribution of SIR-Spheres in the liver. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP356.

Haug A, Goritschan A, Papprotka A, *et al.* Comprehensive evaluation of tumoral MAA-uptake using SPECT and SPECT/CT prior to radioembolization in 502 patients. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2014; **55** (Suppl 1): Abs. 1440.

Sanchez M, Gardin I, Lebtahi R *et al.* Implementation and validation of a collapsed cone superposition for the dosimetry of yttrium 90 therapy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP094.

Pettinato C, Mosconi C, Nanni C *et al.* ^{99m}Tc-MAA SPECT vs ⁹⁰Y PET/CT images: comparison of distribution and dosimetry in SIRT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP359.

Haug AR, Goritschan A, Ilhan H *et al.* Systemic analysis and correlation of MAA uptake of liver tumors and Bremsstrahlung SPECT after radioembolization in 502 Patients. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP355.

Dieudonné A, Sanchez M, Lebtahi R *et al.* Commissioning of ^{99m}Tc-MAA-SPECT/CT dosimetry for radio-embolization with ⁹⁰Y-microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW054.

D'Arienzo M, Cozzella L, Spezi E *et al.* ⁹⁰Y-PET imaging after liver radioembolization: From PET calibration to absorbed dose determination using a monte carlo approach. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW046.

Craig AJ, Murray I, Denis-Bacelar AM *et al.* A comparison between the distributions of ^{99m}Tc-MAA and ⁹⁰Y-microsphere SPECT scans. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW056.

Bagni O, E. Spezi E, Patterson N *et al.* A workflow for treatment evaluation of ⁹⁰Y microspheres SIRT therapy of hepatic lesions based on FDG-PET and ⁹⁰Y-PET. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP432.

Ausland Refsum L, Skretting A, Stokke C. Limitations of ⁹⁰Y PET after microsphere therapy of the liver - a simulation study. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW045

Anderl J, Beyer T, Haug A *et al.* Advancing patient-specific dosimetry in ⁹⁰Y radioembolisation (SIRT): Added benefit of monte carlo simulation of ⁹⁰Y PET. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW053.

- Gnesin S, Canetti L, Fresard S *et al.* ^{99m}Tc -MAA SPECT/CT predictive dosimetry vs. ^{90}Y TOF PET/CT post-treatment dosimetry in radioembolization of hepatocellular carcinoma: A quantitative agreement comparison. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP362.
- Fischman AM, Lewis SC, Patel R *et al.* Prospective, randomized study of coiling vs surefire infusion system in Y-90: Clinical outcomes in HCC patients—subgroup analysis of safety and efficacy from the COSY Trial. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2014; Abs.3104.6.
- Coyne J, Wilson I, Sundram F, Stedman B. Sirtex radioembolization: Correlation between pretreatment macroaggregated albumin scan and posttreatment bremsstrahlung scan. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811–816 Abs.
- Patel RP, Harris A, Thakor AS *et al.* Optimization of arterial-phase computed tomography for the identification of target mesenteric vessels in patients undergoing radioembolization. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e8–9 Abs.
- Pellerin O, Maleux G, Dean C *et al.* Reverse medical microvascular plug (RMP): A new embolic material for hepatic arterial skeletonization. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e5 Abs.
- Blue R, Patel RS, Fischman AM *et al.* Transradial deployment of MVP micro vascular plug system prior to radioembolization: Feasibility and technical considerations. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e19 Abs.
- Patel A, Amir Y, Kim E *et al.* Effectiveness of particle embolization in decreasing pulmonary shunting prior to yttrium-90 radioembolization. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e22 Abs.
- Cianni R, Pelle G, Saltarelli A *et al.* ^{90}Y radioembolization with surefire catheter infusion system in patients with unresectable hepatic metastasis. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e26 Abs.
- Pettinato C, Fracchetti A, Civollani S *et al.* Is it possible to perform voxel dosimetry in a simple way in patients treated with selective internal radio therapy using ^{90}Y microspheres? *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40** (Suppl 2): S234 Abs. OP624.
- Gnesin S, Boubacker A, Adib S *et al.* Dose-response evaluation after yttrium-90 resin microsphere radioembolization of breast cancer liver metastases. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40** (Suppl 2): S234–S235 Abs. OP626.
- Mikell J, Mourtada F, Kappadath SC *et al.* Voxel-based dose heterogeneity and dose-volume effects in ^{90}Y -microsphere therapy dosimetry. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40** (Suppl 2): S235 Abs. OP627.
- Fontaine P, Boirie G, Dieudonne A *et al.* Occupational exposure following yttrium-90 microspheres SIR therapy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40** (Suppl 2): S235 Abs. OP234.
- Caridi T, Soulen MC, Dagli M *et al.* Defining a safe distance from the nearest non-target vessel for delivery of radioembolization in treatment of hepatic tumors alleviating the need for pre-treatment coil embolization. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2013; Abs. 1406.1.
- Fischman A, Arepally A, Sze D *et al.* Radioembolization without prophylactic coil embolization of patent proximal extrahepatic vasculature: Use of an antireflux infusion system. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2013; Abs. 1406.2.
- Schelhorn J, Theysohn JM, Schlaak J *et al.* Selective internal radiation therapy (SIRT) for hepatic tumors: Is gastroduodenal artery coiling always beneficial? *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2013; Abs. 1406.2.
- Theysohn JM, Altenbernd J, Schlaak J *et al.* Can we see CT predictors for high hepatopulmonary shunt fractions before MAA scan? What role can sorafenib play? *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2013; Abs. 2205.2.
- Liu D, Cade D, Worsley D *et al.* Single procedure yttrium-90 (SPY90): Pilot study of a consolidated single procedure selective internal radiation therapy without prior-MAA nuclear medicine scan or prophylactic embolization utilizing yttrium-90 resin microspheres. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2013; Abs. P–280.

- Cash C, Savin MA, Campbell J *et al.* Yttrium-90 infusion: Incidence and outcomes of delivery catheter occlusion. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S34 Abs. 59.
- Lam MG, Louie JD, Abdelmaksoud M *et al.* Dose-response analysis in metastatic colorectal cancer patients treated with hepatic yttrium-90 radioembolization. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S37 Abs. 68.
- Tamrazi A, Lam MG, Louie JD *et al.* Management of high hepatopulmonary shunt fractions in patients undergoing radioembolization. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S154 Abs. 359.
- Pinjaroen N, Kaufman J, Kolbeck KJ. Clinical correlation between hepatic vein opacification and hepatopulmonary shunt fraction for ⁹⁰Y evaluation. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S164 Abs. 385.
- Pacilio M, Botta F, Torres Aroche L *et al.* Impact of voxel S-values calculation method on 3D dosimetry for radionuclide therapy: application to SIRT and IART treatments. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0063.
- Gnesin S, Bertholet J, Boubaker A *et al.* ^{99m}Tc-MAA SPECT-derived tumor-to-normal liver ratios for partition model dosimetry in selective internal radiation therapy (SIRT). *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0068.
- Bagni O, Filippi L, Salvatori R *et al.* Voxel dosimetry with ⁹⁰Y-PET for the assessment of liver toxicity. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0131.
- D'Arienzo M, Chiacchiararelli L, Filippi L *et al.* Dosimetry with ⁹⁰Y PET after liver radioembolization: The role of bed and EUD for the assessment of non uniform activity distributions in lesions. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0475.
- Pettinato C, Monari F, Civollani S *et al.* Retrospective dosimetry in patients affected by HCC and treated with SIRT using ⁹⁰Y-microspheres PET/CT imaging. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP476.
- Bailey DL, Willowson KP, Forwood NJ *et al.* Quantitative PET imaging of Y-90. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP505.
- Ulrich G, Raatz Y, Furth C *et al.* Prognostic value of Tc-99m-MAA-uptake in patients with cholangiocellular carcinoma undergoing Y-90-radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. PO189.
- Dieudonné A, Gardin I, Siebert A *et al.* A Y90-PET/CT for treatment validation of Y90-microspheres SIRT: A 3D dosimetry comparison with pre-therapeutic Tc99m-MAA-SPECT/CT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. PO190.
- Giancola S, Viscomi D, Pacilio M *et al.* SIRT voxel dosimetry: a 3D computational approach for routine application. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. PO194.
- Ma V, Law M, Ng S *et al.* Experience in Y-90 PET imaging and subsequent dose calculation for selective internal radiation therapy to liver cancer. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. PO196.
- Rosenbaum C, D'Asseler Y, Defreyne L *et al.* Practical aspects of activity prescription for ⁹⁰Y-microsphere therapy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. PO198.

- Maleux G, Verslype C, Van Cutsem E *et al.* Comparative study of hydrogel coils versus fibered coils in the prophylactic embolization of the gastroduodenal artery prior to Y-90 radioembolization. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2012*; Abs. P-225.
- Bulla K, Loewenthal D, Hubich S *et al.* Advantages of the proximal placement of the Amplatzer Vascular Plug IV® for embolization of the gastroduodenal artery prior to Yttrium-90 radioembolization: a comparison with standard pushable coils. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2012*; Abs. P-244.
- Kunam V, Shrikanthan S, Srinivas S. Radiation dosimetry of glass versus resin Y-90 microsphere radioembolization in patients with colorectal liver metastases. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine 2012*; **53** (Suppl 1): Abs. 1203.
- Lam MG, Nijssen F, Smits M *et al.* Limitations of the BSA-based dose calculation for Yttrium-90 radioembolization. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2012*; **23** (Suppl): S68 Abs. 162.
- Irani FG, Kao Y, Tay K *et al.* Personalized predictive dosimetry by artery-specific SPECT/CT partition modeling: how effective is it? *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2012*; **23** (Suppl): S68 Abs. 163.
- Louie JD, Wang EA, Broadwell S *et al.* First in man experience with the surefire infusion system: a dedicated microcatheter system to eliminate reflux during embolotherapy. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2012*; **23** (Suppl): S80 Abs. S195.
- Kinsman KA, Kolbeck KJ, Pinjaroen N *et al.* Hepatic vein opacification as an early predictor of pulmonary shunt fraction in radioembolization cases. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2012*; **23** (Suppl): S147 Abs. 367.
- McCann JW, Larkin AM, Moore LT *et al.* Multi-center correlation of external exposure rates from ⁹⁰Y radioembolization patients: contact precautions are unnecessary based on nuclear regulatory commission regulations. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2012*; **23** (Suppl): S68-69 Abs. 164.
- Nitz MD, Anderson CL, Saad WE *et al.* Preliminary analysis of angiographic contrast density as a predictor of liver perfusion change in radioembolization. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2012*; **23** (Suppl): S148-S149 Abs. 371.
- Kennedy A, McNeillie P, Dezarn W *et al.* Development of a tissue-equivalent human liver phantom for ⁹⁰Y-microsphere dosimetry studies and testing of other local ablation therapies. *ASCO Gastrointestinal Cancers Symposium 2012*; Abs. 244.
- Di Dia A, Cremonesi M, Botta B *et al.* Impact of 3D dosimetric and radiobiological estimates methods in radioembolisation of liver metastasis with ⁹⁰Y-microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2011*; **38** (Suppl 2): Abs. OP020.
- D'Arienzo M, Chiamida P, Chiacchiararelli L *et al.* ⁹⁰Y-PET based dosimetry after selective internal radiotherapy (SIRT) treatments. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2011*; **38** (Suppl 2): Abs OP133.
- Arrichiello C, Aloj L, D'Ambrosio L *et al.* Lesion and normal liver absorbed doses based on PET measurements in patients undergoing treatment for liver metastases with ⁹⁰Y SIR spheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2011*; **38** (Suppl 2): Abs. OP134.
- Rodriguez M, Maini C, Salvatori R *et al.* Impact of target area (whole-liver, lobar or segmental) in unresectable hepatocellular carcinoma (HCC) patients treated by radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2011*; **38** (Suppl 2): Abs. OP021.
- Wilhelmsen S, Ulrich G, Löwenthal D *et al.* Effectiveness of repeat assessment in patients scheduled for radioembolization using yttrium-90 microspheres with extrahepatic ^{99m}Tc-MAA accumulation to the gastrointestinal tract: a single center experience. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2011*; Abs. 2107.4.

- Rilling WS, Tutton SM, Hieb RA *et al.* Novel quantitative analysis of tumor to normal liver blood flow ratio: implications for radioembolization dosimetry. *World Conference on Interventional Oncology (WCIO) meeting 2011*; Abs. 47.
- Nichols K, Leveque F, Pugliese P *et al.* Accuracy of pulmonary shunt measurements prior to ⁹⁰Y selective internal radiotherapy: A phantom study. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine 2011*; **52** (Suppl 1): Abs. 90.
- Di Dia GA, Botta F, Marta Cremonesi M *et al.* Voxel-dosimetry as useful tool for optimized administered activity in radioembolization of liver tumors with ⁹⁰Y-microspheres. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine 2011*; **52** (Suppl 1): Abs. 131.
- Civelek A. SIRS-spheres (Y-90 microspheres) therapy for unresectable metastatic liver disease: Pitfalls from tracer preparation for injection to image interpretation. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine 2011*; **52** (Suppl 1): Abs. 1082.
- Kao YH, Tan AEH, Ng DCE, Goh ASW. State-of-the-art Yttrium-90 selective internal radiation therapy: Technical aspects of artery-specific SPECT/CT partition model dosimetry. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine 2011*; **52** (Suppl 1): Abs.1084.
- Lambert B, Mertens J, Ravier M *et al.* Urinary excretion of Yttrium-90 following intra-arterial microsphere treatment for liver tumours. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine 2011*; **52** (Suppl 1): Abs. 1744.
- McCann JW, Martino LJ, Larkin AM *et al.* Radiation emission from patients treated with selective hepatic radioembolization using ⁹⁰Y microspheres: Are contact restrictions necessary? *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2011*; **22** (Suppl): S89–90 Abs. 208.
- Barentsz MW, Van den Bosch MAAJ, Lam MGEH *et al.* Technical solutions to ensure safe yttrium-90 radioembolization in patients with initial extrahepatic deposition of ^{99m}Tc-MAA. *European Congress of Radiology 2011*; Abs. C-0363.
- Yu N, Srinivas SM, DiFilippo FA *et al.* Gamma planar scintigraphy based calculation overestimates lung shunt for Y-90 radioembolization of liver tumor. *52nd Annual Meeting American Society for Radiation Oncology 2010*; **78**: S322 Abs. 2265.
- Young R, Shrikanthan S, Levitin A, Grace Cheah G. SPECT/CT detection of extrahepatic shunting in radiomicrosphere therapy. *57th Annual Meeting of the Society of Nuclear Medicine, Journal of Nuclear Medicine 2010*; **51** (Suppl 2): Abs. 2023.
- Dominguez I, Iñarrairaegui M, Rodriguez M *et al.* Tumor vascularity and response to radioembolization using Y90 resin microspheres. *4th International Liver Cancer Association (ILCA) meeting September 2010*; Abs. P-133.
- Chen YW, Lai YC, Lin CY *et al.* Radiation detection in dialysis room for a uremia patient with Y90 microsphere SIRT – initial experience in KMUH, Taiwan. *3rd European International Radiation Protection Association Congress 2010*; Abs. P02-35.
- Abdelmaksoud M, Louie JD, Hwang GL *et al.* Consolidation of hepatic arterial inflow by embolization of variant and parasitized arteries in preparation for ⁹⁰Y radioembolization. *Society of Interventional Radiology (SIR) 35th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2010*; **21** (Suppl): S13–14 Abs. 29.
- Rilling WS, Royalty K, Hartmann B *et al.* Quantitative analysis of tumor to normal liver blood flow ratio: Implications for radioembolization dosimetry and comparison to visual estimation. *Society of Interventional Radiology (SIR) 35th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2010*; **21** (Suppl): S16 Abs. 36.
- Abdelmaksoud M, Hwang GL, Louie JD *et al.* New hepatico-enteric anastomoses that appear after endovascular skeletonization of the hepatic artery in preparation for radioembolization. *Society of Interventional Radiology (SIR) 35th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2010*; **21** (Suppl): S17 Abs. 38.
- Herraz MJ, Garrastachu P, Iñarrairaegui M *et al.* Yttrium-90 liver radioembolization (Y90-RE): ^{99m}Tc-MAA SPECT/CT tumoral uptake after angiographic redistribution of intrahepatic vessels. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2009*; Abs. P-134.
- Cremonesi M, Ferrari M, Bartolomei M *et al.* Radioembolisation with ⁹⁰Y-microspheres: any possible correlation among response, imaging, and dosimetry? *European Association of Nuclear Medicine (EANM) Conference 2008*; Abs. P591.

- Högberg J, Rizell M, Gjertsson P *et al.* Radiation protection considerations in surgery following radioembolization of liver with ⁹⁰Y microspheres. *European Association of Nuclear Medicine (EANM) Conference 2008*; Abs. 268.
- Högberg J, Gjertsson P, Hultborn R *et al.* Dosimetric aspects following radioembolization of liver with ⁹⁰Y microspheres - evaluation of SPECT images and Monte Carlo simulations. *European Association of Nuclear Medicine (EANM) Conference 2008*; Abs. 446.
- Machac J, Heiba S, Zhang Z *et al.* Prediction of yttrium 90 SIR-Spheres deposition by Tc 99m MAA SPECT/CT liver perfusion imaging and their relationship to angiographic flow. Radiomicrosphere Therapy: 4th Annual Symposium May 2008 *Journal of Interventional Oncology 2009*; **2**: 93.
- Dezarn W, Kennedy A. Significant differences exist across institutions in ⁹⁰Y microsphere activities compared to reference standard. *American Association for Physicists in Medicine July 2007*;
- Ferrari M, Cremonesi M, Bartolomei M *et al.* Different evaluations for safe ⁹⁰Y-microspheres in Selective Internal Radiation Therapy (SIRT). *European Association of Nuclear Medicine (EANM) Conference 2007*; Abs. 266.
- Ferrari M, Cremonesi M, Bartolomei M *et al.* Selective Internal Radiation Therapy (SIRT) with ⁹⁰Y-microspheres: dosimetric and radiobiological considerations for multi-cycle treatments. *European Association of Nuclear Medicine (EANM) Conference 2007*; Abs. 267.
- Monfardini L, Cremonesi M, Ferrari M *et al.* Dosimetric evaluation for safe activity administration of ⁹⁰Y-microspheres in selective internal radiation therapy (SIRT) for liver metastases. *Cardiovascular and Interventional Radiology 2007*; Abs. P-154.
- Moore S, Park MA, Limpa-Amara N *et al.* Measurement of Y-90 resin microsphere activity using dose calibrators. *Journal of Nuclear Medicine 2007*; **48** (Suppl 2): 74P Abs. 247.
- Gulec S, Mesoloras G, Dezarn W *et al.* Biologic determinants of absorbed dose estimates in Y-90 microsphere treatment of hepatic malignancies: Significance of tumor perfusion measured by Tc-99m MAA imaging. *Journal of Nuclear Medicine 2007*; **48** (Suppl 2): 396P Abs. 1676.
- Kennedy AS, Dezarn W, McNeillie P *et al.* Repeat ⁹⁰Y-microsphere radioembolization for hepatic malignancies: Safety and patient selection issues. *ASCO Annual Meeting Proceedings Part I, Journal of Clinical Oncology 2007*; **25** No. 18S (June 20 Supplement): Abs. 15177.
- Lewandowski RJ, Sula S, Sato KT *et al.* Comparison of arteriotomy closure techniques in patients undergoing yttrium radioembolization. *Society of Interventional Radiology (SIR) Conference 2007*; Abs. 423.
- McKay E. Voxel dosimetry of Y-90 micro-spheres in the palliative treatment of neuroendocrine tumours of the liver. *European Association of Nuclear Medicine (EANM) Conference 2006*; Abs. 97.
- Kalogianni E, Towey DJ, Khan S *et al.* ⁹⁰Y microspheres: Comparison of methods for calculating the administered activity in clinical practice. *European Association of Nuclear Medicine (EANM) Conference 2006*; Abs. P568.
- Lau GBH, Wang SC, Ho YY. Technical aspects in the work up for yttrium 90 SIR-Spheres radioembolotherapy in the treatment of hepatic tumours. *World Conference on Interventional Oncology (WCIO) meeting 2006*; Abst. 8185.
- Kennedy A, Nutting C, Coldwell D *et al.* Dose selection of resin ⁹⁰Y-microspheres for liver brachytherapy: A single center review. *Annual American Brachytherapy Society Meeting 2006*; Abs. P76.
- Coldwell D. Selection of patients for treatment of unresectable liver tumours with yttrium-90 microspheres. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2005 Conference 2005*; Abs. 9.5.3.

Hepatic Arterial Anatomy

Papers on Hepatic Arterial Anatomy

- Spa SJ, Welling MM, van Oosterom MN *et al.* A supramolecular approach for liver radioembolization. *Theranostics* 2018; **8** (9): 2377–2386.
- Bermo M, Matesan MC, Itani M *et al.* Hepatopulmonary shunting on Tc99m-MAA liver mapping: correlation with dynamic cross-sectional imaging and description of different shunting patterns. *Abdom Radiol (NY)* 2018 Apr 9; ePub doi: 10.1007/s00261-018-1602-4.
- Simoncini C, Jurczuk K, Reska D *et al.* Towards a patient-specific hepatic arterial modeling for microspheres distribution optimization in SIRT protocol. *Med Biol Eng Comput* 2018; **56** (3): 515–529.
- Thakor AS, Alshammari MT, Liu DM *et al.* Transradial Access for Interventional Radiology: Single-Centre Procedural and Clinical Outcome Analysis. *Can Assoc Radiol J* 2017; **68** (3): 318–327.
- Ahmed O, Patel MV, Masrani A *et al.* Assessing intra-arterial complications of planning and treatment angiograms for Y-90 radioembolization. *Cardiovascular and Interventional Radiology* 2017 Jan 11; ePub doi: 10.1007/s00270-016-1555-3.
- Lam MGEH, Borggreve AS, Landman AJEMC *et al.* Accessory left gastric artery from left hepatic artery is a potential risk for radioembolization complications. *Cardiovascular and Interventional Radiology* 2016 May 19; ePub doi: 10.1007/s00270-016-1381-7. [letter to the editor]
- Borggreve AS, Landman AJ, Vissers CM *et al.* Radioembolization: Is prophylactic embolization of hepaticocentric arteries necessary? A systematic review. *Cardiovascular and Interventional Radiology* 2016 Mar 2; ePub doi: 10.1007/s00270-016-1310-9.
- van den Hoven AF, van Leeuwen MS, Lam MG, van den Bosch MA. Hepatic arterial configuration in relation to the segmental anatomy of the liver; observations on MDCT and DSA relevant to radioembolization treatment. *Cardiovascular and Interventional Radiology* 2015; **38**: 100–111.
- Powerski MJ, Erxleben C, Scheurig-Münkler C *et al.* Anatomic variants of arteries often coil-occluded prior to hepatic radioembolization. *Acta Radiologica* 2015; **56**: 159–165.
- van den Hoven AF, Smits ML, de Keizer B *et al.* Identifying aberrant hepatic arteries prior to intra-arterial radioembolization. *Cardiovascular and Interventional Radiology* 2014; **37**: 1482–1493.
- Theysohn JM, Müller S, Schlaak JF *et al.* Selective internal radiotherapy (SIRT) of hepatic tumors: how to deal with the cystic artery. *Cardiovascular and Interventional Radiology* 2013; **36**: 1015–1022.
- Chamarthy MR, Hughes TW, Gupta M *et al.* Celiac artery stenting to facilitate hepatic yttrium-90 radioembolization therapy. *Case Reports in Radiology* 2012; **2012**: 236732.
- Burgmans MC, Too CW, Kao YH *et al.* Computed tomography hepatic arteriography has a hepatic faliform artery detection rate that is much higher than that of digital subtraction angiography and ^{99m}Tc-MAA SPECT/CT: Implications for planning ⁹⁰Y radioembolization? *European Journal of Radiology* 2012; **81**: 3979–3984.
- Burgmans MC, Kao YH, Irani FG *et al.* Radioembolization with infusion of Yttrium-90 microspheres into a right inferior phrenic artery with hepatic tumor supply is feasible and safe. *Journal of Vascular Interventional Radiology* 2012; **23**: 1294–1301.
- Tapping CR, Dixon S, Little MW *et al.* Liquid embolization of the gastroduodenal artery before selective internal radiotherapy (SIRT). *Clinical Radiology* 2012; **67**: 789–792.
- Gaba RC, Vanmiddlesworth KA. Chemoembolic hepatopulmonary shunt reduction to allow safe Yttrium-90 radioembolization lobectomy of hepatocellular carcinoma. *Cardiovascular and Interventional Radiology* 2012; **35**: 1505–1511.
- Mahvash A, Zaer N, Shaw C *et al.* Temporary balloon occlusion of the common hepatic artery for administration of yttrium-90 resin microspheres in a patient with patent hepatoenteric collaterals. *Journal of Vascular Interventional Radiology* 2012; **23**: 277–280.
- Lenoir L, Edeline J, Rolland Y *et al.* Usefulness and pitfalls of MAA SPECT/CT in identifying digestive extrahepatic uptake when planning liver radioembolization. *European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39**: 872–880.
- Gupta A, Levitin A, Shrikanthan S *et al.* Macroaggregated albumin injected in hepatic artery visualized in a recanalized paraumbilical vein. *Clinical Nuclear Medicine* 2012; **37**: 80–81.

Haggerty JE, Vaidya S, Kooy T *et al.* Identification of the falciform artery on nuclear medicine imaging with successful coil embolization for planned Y-90 therapy. *Clinical Nuclear Medicine* 2012; **37**: 105–107.

Goryawala M, Guillen M, Cabrerizo M *et al.* A 3D liver segmentation method with parallel computing for Selective Internal Radiation Therapy. *IEEE Transactions on Information Technology in Biomedicine* 2012; **16**: 62–69.

Daghir AA, Gungor H, Haydar AA *et al.* Embolisation of the gastroduodenal artery is not necessary in the presence of reversed flow before yttrium-90 radioembolisation. *Cardiovascular and Interventional Radiology* 2012; **35**: 839–844.

Paprottka PM, Jakobs TF, Reiser MF, Hoffmann RT. Practical vascular anatomy in the preparation of radioembolization. *Cardiovascular and Interventional Radiology* 2012; **35**: 454–462.

Salem R. Invited commentary on “Abdelmaksoud MH, Louie JD, Kothary N *et al.* Consolidation of hepatic arterial inflow by embolization of variant hepatic arteries in preparation for yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2011; **22**: 1364–1371”. *Journal of Vascular and Interventional Radiology* 2011; **22**: 1362–1363.

Abdelmaksoud MH, Louie JD, Kothary N *et al.* Embolization of parasitized extrahepatic arteries to reestablish intrahepatic arterial supply to tumors before yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2011; **22**: 1355–1362.

Abdelmaksoud MH, Louie JD, Kothary N *et al.* Consolidation of hepatic arterial inflow by embolization of variant hepatic arteries in preparation for yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2011; **22**: 1364–1371.

Petroziello MF, McCann JW, Gonsalves CF *et al.* Side-branch embolization before ⁹⁰Y radioembolization: rate of recanalization and new collateral development. *AJR – American Journal of Roentgenology* 2011; **197**: W169–174.

Ahmadzadehfar H, Möhlenbruch M, Sabet A *et al.* Is prophylactic embolization of the hepatic falciform artery needed before radioembolization in patients with ^{99m}Tc-MAA accumulation in the anterior abdominal wall? *European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38**: 1477–1484.

Kao YH, Tan AE, Khoo LS *et al.* Hepatic falciform ligament Tc-99m-macroaggregated albumin activity on SPECT/CT prior to Yttrium-90 microsphere radioembolization: prophylactic measures to prevent non-target microsphere localization via patent hepatic falciform arteries. *Annals of Nuclear Medicine* 2011; **25**: 365–369.

Abdelmaksoud MH, Hwang GL, Louie JD *et al.* Development of new hepaticocentric collateral pathways after hepatic arterial skeletonization in preparation for yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2010; **21**: 1385–1395.

Karunanithy N, Gordon F, Hodolic M *et al.* Embolization of hepatic arterial branches to simplify hepatic blood flow before yttrium 90 radioembolization: a useful technique in the presence of challenging anatomy. *Cardiovascular and Interventional Radiology* 2011; **34**: 287–294.

Bilbao JI, Garrastachu P, Herráiz MJ *et al.* Safety and efficacy assessment of flow redistribution by occlusion of intrahepatic vessels prior to radioembolization in the treatment of liver tumors. *Cardiovascular and Interventional Radiology* 2010; **33**: 523–531.

Haydar AA, Wasan H, Wilson C, Tait P. ⁹⁰Y radioembolization: embolization of the gastroduodenal artery is not always appropriate. *Cardiovascular and Interventional Radiology* 2010; **33**: 1069–1071.

De Cecco CN, Ferrari R, Rengo M *et al.* Anatomic variations of the hepatic arteries in 250 patients studied with 64-row CT angiography. *European Radiology* 2009; **19**: 2765–2770.

Cosin O, Bilbao JI, Alvarez S *et al.* Right gastric artery embolization prior to treatment with yttrium-90 microspheres. *Cardiovascular and Interventional Radiology* 2007; **30**: 98–103.

Lewandowski RJ, Sato KT, Atassi B *et al.* Radioembolization with ⁹⁰Y microspheres: angiographic and technical considerations. *Cardiovascular and Interventional Radiology* 2007; **30**: 571–592.

Liu D, Salem R, Bui J *et al.* Angiographic considerations in patients undergoing liver-directed therapy. *Journal of Vascular and Interventional Radiology* 2005; **16**: 911–935.

Papers on Reduction of Lung Shunting

Theysohn JM, Schlaak JF, Müller S *et al.* Selective internal radiation therapy of hepatocellular carcinoma: potential hepatopulmonary shunt reduction after sorafenib administration. *Journal of Vascular and Interventional Radiology* 2012; **23**: 949–952.

Rose SC, Hoh CK. Hepatopulmonary shunt reduction using chemoembolization to permit yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2009; **20**: 849–851.

Bester L, Salem R. Reduction of arteriohepatovenous shunting by temporary balloon occlusion in patients undergoing radioembolization. *Journal of Vascular and Interventional Radiology* 2007; **18**: 1310–1314.

Murata S, Tajima H, Abe Y *et al.* Temporary occlusion of two hepatic veins for chemoembolization of hepatocellular carcinoma with arteriohepatic vein shunts. *American Journal of Roentgenology* 2005; **184**: 415–417.

Abstracts on Hepatic Arterial Anatomy

Koppula R, Weinstein J, Krishnasamy V *et al.* Temporary embolization of the cystic artery in right hepatic lobe Y-90 radioembolization. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S161-S162 Abs. 378.

Fortes MC, Dias AP, Uflacker R *et al.* Importance of the angiographic identification of the right gastric artery anatomic origin in the era of Yttrium-90 liver radioembolization. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S67 Abs. 159.

Hill G, Amesur NB, Zajko AB *et al.* Reconsidering the necessity for prophylactic embolization of the gastroduodenal artery and right gastric artery prior to radioembolization of the liver with Yttrium-90 microspheres. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S67 Abs. 160.

Wang DS, Louie JD, Shah RP *et al.* Prophylactic topically applied ice to prevent cutaneous complications of nontarget chemoembolization and radioembolization of liver tumors. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S84 Abs. 203.

Speer ME, Abdelsalam ME, Chasen B *et al.* The retroportal artery and other less well-known hepatoenteric pathways: moving beyond GDA and right gastric embolization. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S151 Abs. 378.

Wang X, Shah RP, Brown KT *et al.* Cystic artery localization using a three-dimensional angiography vessel tracking system compared with conventional two-dimensional angiography. *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2011; **22** (Suppl): S49–50 Abs. 111.

Farsad K, Ganguli S, Wicky S *et al.* Options to access the hepatic artery for transarterial hepatic therapy in the setting of severe celiac axis stenosis or occlusion. *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2011; **22** (Suppl): S119 Abs. 282.

Imaging

Papers on Imaging

- Große Hokamp N, Kobe C, O'Donnell JK *et al.* Falciform Ligament Artery Uptake on 99mTc MAA Planning Scan Before 90Y SIRT Confirmed by Retrospective SPECT/MRI Fusion. *Clin Nucl Med* 2018 Jul; **43** (7): 522–523.
- Lim H, Fessler JA, Wilderman SJ *et al.* Y-90 SPECT ML image reconstruction with a new model for tissue-dependent bremsstrahlung production using CT information: a proof-of-concept study. *Phys Med Biol* 2018 May 22; **63** (11): 115001. ePub doi: 10.1088/1361-6560/aac1ad.
- Barabasch A, Heinzl A, Bruners P *et al.* Diffusion-weighted MRI is superior to PET/CT in Predicting Survival of Patients Undergoing ⁹⁰Y Radioembolization of Hepatic Metastases. *Radiology* 2018 May 21: 170408. ePub doi: 10.1148/radiol.2018170408.
- Niekamp A, Abdel-Wahab R, Kuban J *et al.* Baseline apparent diffusion coefficient as a predictor of response to liver-directed therapies in hepatocellular carcinoma. *J Clin Med* 2018 Apr 14; **7** (4): E83.
- Chan KT, Alessio AM, Johnson GE *et al.* Hepatotoxic Dose Thresholds by Positron-Emission Tomography After Yttrium-90 Radioembolization of Liver Tumors: A Prospective Single-Arm Observational Study. *Cardiovasc Intervent Radiol* 2018 Apr 12. ePub doi: 10.1007/s00270-018-1949-5.
- Maughan NM, Eldib M, Faul D *et al.* Multi institutional quantitative phantom study of yttrium-90 PET in PET/MRI: the MR-QUEST study. *EJNMMI Phys* 2018 Apr; **5** (1): 7.
- Patel D, Le K, Chaganti J *et al.* Hepatic falciform artery demonstrating MAA uptake in the anterior abdomen prior to embolization. *Clin Nucl Med* 2018; **43** (1): 62–64.
- Botta F, Ferrari M, Chiesa C *et al.* Impact of missing attenuation and scatter corrections on 99m Tc-MAA SPECT 3D dosimetry for liver radioembolization using the patient relative calibration methodology: A retrospective investigation on clinical images. *Med Phys* 2018; **45** (4): 1684–1698.
- Osborne DR, Acuff SN, Neveu ML *et al.* Feasibility assessment of yttrium-90 liver radioembolization imaging using amplitude-based gated PET/CT. *Nucl Med Commun* 2018; **39** (3): 222–227.
- Walrand S, Hesse M, Jamar F *et al.* The origin and reduction of spurious extrahepatic counts observed in 90Y non-TOF PET imaging post radioembolization. *Phys Med Biol* 2018; **63** (7): 075016.
- Hamie QM, Kobe AR, Mietzsch L *et al.* Prototype metal artefact reduction algorithm in flat panel computed tomography - evaluation in patients undergoing transarterial hepatic radioembolisation. *Eur Radiol* 2018; **28** (1): 265–273.
- Dittmann HJM, Kopp D, Kupferschlaeger J *et al.* A prospective study of quantitative SPECT/CT for evaluation of hepatopulmonary shunt fraction prior to SIRT of liver tumors. *J Nucl Med* 2018 Jan 25. ePub doi: 10.2967/jnumed.117.205203.
- Porter CA, Bradley KM, Hippeläinen ET *et al.* Phantom and clinical evaluation of the effect of full Monte Carlo collimator modelling in post-SIRT yttrium-90 Bremsstrahlung SPECT imaging. *EJNMMI Res* 2018; **8** (1): 7.
- Takahashi A, Himuro K, Baba S *et al.* Comparison of TOF-PET and Bremsstrahlung SPECT images of Yttrium-90: A Monte Carlo simulation study. *Asia Ocean J Nucl Med Biol* 2018; **6** (1): 24–31.
- Lewis HL, Ghasabeh MA, Khoshpouri P *et al.* Functional hepatic imaging as a biomarker of primary and secondary tumor response to loco-regional therapies. *Surg Oncol* 2017; **26** (4): 411–422.
- D'Arienzo M, Pimpinella M, Capogni M *et al.* Phantom validation of quantitative Y-90 PET/CT-based dosimetry in liver radioembolization. *EJNMMI Res* 2017; **7** (1): 94.
- Mañeru F, Abós D, Bragado L *et al.* Dosimetry and prescription in liver radioembolization with ⁹⁰Y microspheres: 3D calculation of tumor-to-liver ratio from global ^{99m}Tc-MAA SPECT information. *Phys Med Biol* 2017; **62** (23): 9099–9111.
- Semaan S, Makkar J, Lewis S *et al.* Imaging of Hepatocellular Carcinoma Response After 90Y Radioembolization. *AJR Am J Roentgenol* 2017; **209** (5): W263–W276.
- Shah JL, Zendejas-Ruiz IR, Thornton LM *et al.* Neoadjuvant transarterial radiation lobectomy for colorectal hepatic metastases: a small cohort analysis on safety, efficacy, and radiopathologic correlation. *J Gastrointest Oncol* 2017; **8** (3): E43–E51.

- Wright CL, Binzel K, Zhang J *et al.* Clinical feasibility of ^{90}Y digital PET/CT for imaging microsphere biodistribution following radioembolization. *Eur J Nucl Med Mol Imaging* 2017; **44** (7): 1194–1197.
- Bernardini M, Thevenet H, Berthold C *et al.* Optimisation of reconstruction, volumetry and dosimetry for $^{99\text{m}}\text{Tc}$ -SPECT and ^{90}Y -PET images: Towards reliable dose-volume histograms for selective internal radiation therapy with ^{90}Y -microspheres. *Phys Med* 2017; **39**: 147–155.
- Schmeel FC, Simon B, Luetkens JA *et al.* Prognostic value of pretreatment diffusion-weighted magnetic resonance imaging for outcome prediction of colorectal cancer liver metastases undergoing ^{90}Y -microsphere radioembolization. *Journal of Cancer Research and Clinical Oncology* 2017 Mar 19; ePub doi: 10.1007/s00432-017-2395-5.
- Jreige M, Mitsakis P, Van Der Gucht A *et al.* ^{18}F -FDG PET/CT predicts survival after ^{90}Y transarterial radioembolization in unresectable hepatocellular carcinoma. *European Journal of Nuclear Medicine and Molecular Imaging* 2017 Feb 23; ePub doi: 10.1007/s00259-017-3653-0.
- Gordic S, Ayache JB, Kennedy P *et al.* Value of tumor stiffness measured with MR elastography for assessment of response of hepatocellular carcinoma to locoregional therapy. *Abdominal Radiology* 2017 Feb 2; ePub doi: 10.1007/s00261-017-1066-y.
- Pasciak AS, Lin A, Georgiades C *et al.* Computational simulation of the predicted dosimetric impact of adjuvant yttrium-90 PET/CT-guided percutaneous ablation following radioembolization. *EJNMMI Research* 2016 Dec 12; ePub doi: 10.1186/s13550-016-0244-1.
- Obrzut S, McCammack K, Badran KW *et al.* Prognostic value of post-Yttrium 90 radioembolization therapy ^{18}F -fluorodeoxyglucose positron emission tomography in patients with liver tumors. *Clinical Imaging* 2016; **42**: 43–49.
- Gallio E, Richetta E, Finessi M *et al.* Calculation of tumour and normal tissue biological effective dose in ^{90}Y liver radioembolization with different dosimetric methods. *Physica Medica* 2016 Nov 18; ePub doi: 10.1016/j.ejmp.2016.10.023.
- Pieper CC, Sprinkart AM, Meyer C *et al.* Evaluation of a simplified intravoxel incoherent motion (IVIM) analysis of diffusion-weighted imaging for prediction of tumor size changes and imaging response in breast cancer liver metastases undergoing radioembolization: A retrospective single center analysis. *Medicine (Baltimore)* 2016; **95**: e3275.
- Wu CH, Liao YJ, Lin TY *et al.* A volume-equivalent spherical necrosis-tumor-normal liver model for estimating absorbed dose in yttrium-90 microsphere therapy. *Medical Physics* 2016; **43**: 6082.
- Gnesin S, Canetti L, Adib S *et al.* Partition model based $^{99\text{m}}\text{Tc}$ -MAA SPECT/CT predictive dosimetry compared to ^{90}Y TOF PET/CT post-treatment dosimetry in radioembolisation of hepatocellular carcinoma: A quantitative agreement comparison. *The Journal of Nuclear Medicine* 2016; **57**: 1672–1678.
- Mürtz P, Penner AH, Pfeiffer AK *et al.* Intravoxel incoherent motion model-based analysis of diffusion-weighted magnetic resonance imaging with 3 b-values for response assessment in locoregional therapy of hepatocellular carcinoma. *Journal of OncoTargets and Therapy* 2016; **9**: 6425–6433.
- Yue J, Mauxion T, Reyes DK *et al.* Comparison of quantitative Y-90 SPECT and non-time-of-flight PET imaging in post-therapy radioembolization of liver cancer. *Medical Physics* 2016; **43**: 5779.
- Strydhorst J, Carlier T, Dieudonné A *et al.* A gate evaluation of the sources of error in quantitative ^{90}Y PET. *Medical Physics* 2016; **43**: 5320.
- Rowley LM, Bradley KM, Boardman P *et al.* Optimization of image reconstruction for yttrium-90 SIRT on a LYSO PET/CT system using a Bayesian penalized likelihood reconstruction algorithm. *The Journal of Nuclear Medicine* 2016 Sep 29; ePub doi: 10.2967/jnumed.116.176552.
- Altenbernd J, Wetter A, Forsting M, Umutlu L. Treatment response after radioembolisation in patients with hepatocellular carcinoma-An evaluation with dual energy computed-tomography. *European Journal of Radiology Open* 2016; **3**: 230–235.
- Magnetta MJ, Ghodadra A, Lahti SJ *et al.* Connecting cancer biology and clinical outcomes to imaging in KRAS mutant and wild-type colorectal cancer liver tumors following selective internal radiation therapy with yttrium-90. *Abdominal Radiology* 2016 Sep 6; ePub doi: 10.1007/s00261-016-0875-8.

Mehta R, Cai K, Kumar N *et al.* A lesion-based response prediction model using pretherapy PET/CT image features for Y90 radioembolization to hepatic malignancies. *Technology in Cancer Research & Treatment* 2016 Sep 6; ePub doi: 10.1177/1533034616666721.

Gear JI, Cummings C, Craig AJ *et al.* Abdo-Man: A 3D-printed anthropomorphic phantom for validating quantitative SIRT. *EJNMMI Physics* 2016 Aug 5; ePub doi: 10.1186/s40658-016-0151-6.

Kallini JR, Gabr A, Kulik L *et al.* The utility of unilobar technetium-99m macroaggregated albumin to predict pulmonary toxicity in bilobar hepatocellular carcinoma prior to yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2016; **27**: 1453–1456.

Boas FE, Brody LA, Erinjeri JP *et al.* Quantitative measurements of enhancement on preprocedure triphasic CT can predict response of colorectal liver metastases to radioembolization. *American Journal of Roentology* 2016 Jun 1; ePub doi: 10.2214/AJR.15.15767.

Eldib M, Oesingmann N, Faul DD *et al.* Optimization of yttrium-90 PET for simultaneous PET/MR imaging: A phantom study. *Medical Physics* 2016; **43**: 4768.

Pieper CC, Meyer C, Sprinkart AM *et al.* The value of intravoxel incoherent motion model-based diffusion-weighted imaging for outcome prediction in resin-based radioembolization of breast cancer liver metastases. *OncoTargets and Therapy* 2016; **9**: 4089–4098.

Narsinh KH, Van Buskirk M, Kennedy AS *et al.* Hepatopulmonary shunting: A prognostic indicator of survival in patients with metastatic colorectal adenocarcinoma treated with ⁹⁰Y radioembolization. *Radiology* 2016 Jul 19; ePub doi: 10.1148/radiol.2016152100.

Pieper CC, Willinek WA, Meyer C *et al.* Intravoxel incoherent motion diffusion-weighted MR imaging for prediction of early arterial blood flow stasis in radioembolization of breast cancer liver metastases. *Journal of Vascular and Interventional Radiology* 2016; **27**: 1320–1328.

Shady W, Sotirchos VS, Do RK *et al.* Surrogate imaging biomarkers of response of colorectal liver metastases after salvage radioembolization using ⁹⁰Y-loaded resin microspheres. *American Journal of Roentgenology* 2016 Jul 6; ePub doi: 10.2214/AJR.15.15202.

Pacilio M, Ferrari M, Chiesa C *et al.* Impact of SPECT corrections on 3D-dosimetry for liver transarterial radioembolization using the patient relative calibration methodology. *Medical Physics* 2016; **43**: 4053.

Grosser OS, Ruf J, Kupitz D *et al.* Pharmacokinetics of ^{99m}Tc-MAA- and ^{99m}Tc-HSA-microsphere used in preradioembolization dosimetry: Influence on the liver-lung shunt. *Journal of Nuclear Medicine* 2016; **57**: 925–927.

Schmeel FC, Simon B, Sabet A *et al.* Diffusion-weighted magnetic resonance imaging predicts survival in patients with liver-predominant metastatic colorectal cancer shortly after selective internal radiation therapy. *European Radiology* 2016 Jun 7; ePub doi: DOI 10.1007/s00330-016-4430-3.

Rathmann N, Budjan J, Mari F *et al.* Semiautomatic whole-lesion apparent diffusion coefficient assessment for early prediction of liver tumor response to radioembolization. *Anticancer Research* 2016; **36**: 2961–2966.

Braat MNGJA, van den Hoven AF, van Doormaal P *et al.* The caudate lobe: the blind spot in radioembolization or an overlooked opportunity? *Cardiovascular and Interventional Radiology* 2016; **39**: 847–854.

Shady W, Kishore S, Gavane S *et al.* Metabolic tumor volume and total lesion glycolysis on FDG-PET/CT can predict overall survival after ⁹⁰Y radioembolization of colorectal liver metastases: A comparison with SUVmax, SUVpeak, and RECIST 1.0. *European Journal of Radiology* 2016; **85**: 1224–1231.

van den Hoven A, Rosenbaum C, Elias S *et al.* Insights into the dose-response relationship of radioembolization with resin yttrium-90 microspheres: A prospective cohort study in patients with colorectal cancer liver metastases. *Journal of Nuclear Medicine* 2016 Feb 23; ePub doi: 10.2967/jnumed.115.166942.

Pasciak AS, Bourgeois AC, Bradley YC *et al.* A microdosimetric analysis of tumor absorbed-dose as a function of the number of microspheres per unit volume in Yttrium-90 radioembolization. *Journal of Nuclear Medicine* 2016; **57**: 1020–1026.

Bapst B, Lagadec M, Breguet R *et al.* Cone Beam Computed Tomography (CBCT) in the field of interventional oncology of the liver. *Cardiovascular and Interventional Radiology* 2016; **39**: 8–20.

Rhee S, Kim S, Cho J *et al.* Semi-quantitative analysis of post-transarterial radioembolization ⁹⁰Y microsphere positron emission tomography combined with computed tomography (PET/CT) images in

- advanced liver malignancy: Comparison with ^{99m}Tc macroaggregated albumin (MAA) single photon emission computed tomography (SPECT). *Nuclear Medicine and Molecular Imaging* 2016; **50**: 63–69.
- Braat MN, van den Hoven AF, van Doormaal P *et al.* The caudate lobe: The blind spot in radioembolization or an overlooked opportunity? *Cardiovascular and Interventional Radiology* 2016; **39**: 847–854.
- Kallini JR, Miller FH, Gabr A *et al.* Hepatic imaging following intra-arterial embolotherapy. *Abdominal Radiology* 2016; **41**: 600–616.
- Fowler KJ, Maughan NM, Laforest R *et al.* PET/MRI of hepatic ^{90}Y microsphere deposition determines individual tumor response. *Cardiovascular and Interventional Radiology* 2016; **39**: 855–864.
- Michl M, Lehner S, Paprottka PM *et al.* PET response criteria (PERCIST) predict progression-free survival and overall survival after radioembolization for liver metastases from pancreatic cancer. *Journal of Nuclear Medicine* 2016; **57**: 355–360.
- Prince JF, van Diepen R, van Rooij R, Lam MG. Is there a correlation between planar scintigraphy after ^{99m}Tc -MAA and ^{90}Y administration? *Nuclear Medicine Communications* 2016; **37**: 218–219.
- Filippi L, Scopinaro F, Pelle G *et al.* Molecular response assessed by ^{68}Ga -DOTANOC and survival after ^{90}Y microsphere therapy in patients with liver metastases from neuroendocrine tumours. *European Journal of Nuclear and Medical Molecular Imaging* 2016; **43**: 432–440.
- Reiner CS, Gordic S, Puipe G *et al.* Histogram analysis of CT perfusion of hepatocellular carcinoma for predicting response to transarterial radioembolization: Value of tumor heterogeneity assessment. *Cardiovascular and Interventional Radiology* 2016; **39**: 400–408.
- Edalat F, Camacho JC, Kokabi N *et al.* Standardized added metabolic activity (SAM) predicts survival after intra-arterial resin-based ^{90}Y radioembolization therapy in unresectable chemorefractory metastatic colorectal cancer to the liver. *Clinical Nuclear Medicine* 2016; **41**: e71–81.
- Soydal C, Kucuk ON, Bilgic S, Ibis E. Radioembolization with ^{90}Y resin microspheres for intrahepatic cholangiocellular carcinoma: prognostic factors. *Annals of Nuclear Medicine* 2016; **30**: 29–34.
- Kennedy AS, Ball DS, Cohen SJ *et al.* Hepatic imaging response to radioembolization with yttrium-90-labeled resin microspheres for tumor progression during systemic chemotherapy in patients with colorectal liver metastases. *Journal of Gastrointestinal Oncology* 2015; **6**: 594–604.
- Roshan HR, Mahmoudian B, Gharepapagh E *et al.* Collimator and energy window optimization for ^{90}Y bremsstrahlung SPECT imaging: A SIMIND Monte Carlo study. *Applied Radiation and Isotopes* 2015; **108**: 124–128.
- Bagni O, Filippi L, Pelle G *et al.* Total lesion glycolysis and sequential ^{90}Y -selective internal radiation therapy in breast cancer liver metastases: Preliminary results. *Cancer Biotherapy & Radiopharmaceuticals* 2015; **30**: 421–426.
- Bohle W, Zoller WG. Ultrasound in radioembolization induced liver disease (REILD). *Zeitschrift für Gastroenterologie* 2015; **53**: 798–801.
- Lam MG, Banerjee A, Goris ML *et al.* Fusion dual-tracer SPECT-based hepatic dosimetry predicts outcome after radioembolization for a wide range of tumour cell types. *European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42**: 1192–1201.
- Filippi L, Pelle G, Cianni R *et al.* Change in total lesion glycolysis and clinical outcome after ^{90}Y radioembolization in intrahepatic cholangiocarcinoma. *Nuclear Medicine and Biology* 2015; **42**: 59–64.
- Hartenbach M, Weber S, Albert NL *et al.* Evaluating treatment response of radioembolization in intermediate stage hepatocellular carcinoma patients using ^{18}F Fluoroethylcholine-PET/CT. *Journal of Nuclear Medicine* 2015; **56**: 1661–1666.
- Garin E, Rolland Y, Laffont S, Edeline J. Clinical impact of ^{99m}Tc -MAA SPECT/CT-based dosimetry in the radioembolization of liver malignancies with ^{90}Y -loaded microspheres. *European Journal of Nuclear and Medical Molecular Imaging* 2015; **43**: 559–575.
- Piasecki P, Brzozowski K, Zięcina P *et al.* The use of ^{90}Y -PET imaging in evaluation of ^{90}Y -microspheres distribution in the liver: Initial results. *Nuclear Medicine Review* 2015; **18**: 92–96.
- Ilhan H, Goritschan A, Paprottka P *et al.* Predictive value of ^{99m}Tc -labelled MAA scintigraphy for ^{90}Y -microspheres distribution in radioembolization treatment with resin microspheres in primary and secondary hepatic tumors. *Journal of Nuclear Medicine* 2015; **56**: 1654–1660.

- Olufoladare G, Olorunsola OG, Kohi MP *et al.* Imaging predictors of elevated lung shunt fraction in patients being considered for yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2015; **26**: 1472–1478.
- Kao YH, Goodwin M, Lee ST *et al.* Scientific basis of personalised tomographic radiation planning for radioembolisation: A form of brachytherapy planning. *Journal of Medical Imaging and Radiation Oncology* 2015; **59**: 617–618.
- Song YS, Paeng JC, Kim HC *et al.* PET/CT-based dosimetry in ⁹⁰Y-microsphere selective internal radiation therapy: Single cohort comparison with pretreatment planning on ^{99m}Tc-MAA imaging and correlation with treatment efficacy. *Medicine* 2015; **94**: e945.
- Carlier T, Willowson KP, Fourkal E *et al.* ⁹⁰Y -PET imaging: Exploring limitations and accuracy under conditions of low counts and high random fraction. *Medical Physics* 2015; **42**:4295.
- Roshan HR, Azarm A, Mahmoudian B, Islamian JP. Advances in SPECT for optimizing the liver tumors radioembolization using yttrium-90 microspheres. *World Journal of Nuclear Medicine* 2015; **14**: 75–80.
- Wright CL, Zhang J, Tweedle MF *et al.* Theranostic imaging of yttrium-90. *BioMed Research International* 2015; **2015**: 481279.
- van den Hoven AF, Prince JF, de Keizer B *et al.* Use of C-Arm cone beam CT during hepatic radioembolization: Protocol optimization for extrahepatic shunting and parenchymal enhancement. *CardioVascular and Interventional Radiology* 2015; **39**: 64–73.
- Bagni O, Filippi L, Schillaci O. The role of ¹⁸F-FDG positron emission tomography in the follow-up of liver tumors treated with ⁹⁰Yttrium radioembolization. *American Journal of Nuclear Medicine and Molecular Imaging* 2015; **5**: 220–232.
- Willowson KP, Tapner M, QUEST Investigator Team, Bailey DL. A multicentre comparison of quantitative ⁹⁰Y PET/CT for dosimetric purposes after radioembolization with resin microspheres: The QUEST Phantom Study. *European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42**: 1202–1222.
- Ilhan H, Goritschan A, Paprottka P *et al.* Systematic evaluation of tumoral ^{99m}Tc-MAA uptake using SPECT and SPECT/CT in 502 patients before ⁹⁰Y radioembolization. *The Journal of Nuclear Medicine* 2015; **56**: 333–338.
- Wissmeyer M, Delattre BM, Zaidi H *et al.* ⁹⁰Yttrium PET/MR-based dosimetry after liver radioembolization (SIRT). *Clinical Nuclear Medicine* 2015; **40**: 355–357.
- Walrand S, Hesse M, Lhommel R, Jamar F. About the impact of image reconstruction bias on PET/CT ⁹⁰Y dosimetry after radioembolization. *Journal of Nuclear Medicine* 2015; **56**: 494–495.
- Barabasch A, Kraemer NA, Ciritsis A *et al.* Diagnostic accuracy of diffusion-weighted magnetic resonance imaging versus positron emission tomography/computed tomography for early response assessment of liver metastases to Y⁹⁰-radioembolization. *Investigative Radiology* 2015; **50**: 409–415.
- Vouche M, Salem R, Miller FH *et al.* ⁹⁰Y radioembolization of colorectal cancer liver metastases: response assessment by contrast-enhanced computed tomography with or without PET-CT guidance. *Journal of Clinical Imaging* 2015; **39**: 454–462.
- Demirelli S, Erkilic M, Oner AO *et al.* Evaluation of factors affecting tumor response and survival in patients with primary and metastatic liver cancer treated with microspheres. *Nuclear Medicine Communications* 2015; **36**: 340–349..
- Boas FE, Do B, Louie JD *et al.* Optimal imaging surveillance schedules after liver-directed therapy for hepatocellular carcinoma. *Journal of Vascular and Interventional Radiology* 2015; **26**: 69–73.
- Peynircioğlu B, Hızal M, Çil B *et al.* Quantitative liver tumor blood volume measurements by a C-arm CT post-processing software before and after hepatic arterial embolization therapy: comparison with MDCT perfusion. *Diagnostic and Interventional Radiology* 2015; **21**: 71–77.
- Bagni O, Filippi L, Schillaci O. ¹⁸F-FDG PET-derived parameters as prognostic indices in hepatic malignancies after ⁹⁰Y radioembolization: is there a role? *European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42**: 367–369.
- Seidensticker M, Burak M, Kalinski T *et al.* Radiation-induced liver damage: Correlation of histopathology with hepatobiliary magnetic resonance imaging, a feasibility study. *Cardiovascular and Interventional Radiology* 2015; **38**: 213–221.

- van den Hoven AF, van Leeuwen MS, Lam MG, van den Bosch MA. Hepatic arterial configuration in relation to the segmental anatomy of the liver; observations on MDCT and DSA relevant to radioembolization treatment. *Cardiovascular and Interventional Radiology* 2015; **38**: 100–111.
- Ceelen F, Theisen D, de Albéniz XG *et al.* Towards new response criteria in neuroendocrine tumors: Which changes in MRI parameters are associated with longer progression-free survival after radioembolization of liver metastases? *Journal of Magnetic Resonance Imaging* 2015; **41**: 361–368.
- Camacho JC, Kokabi N, Xing M *et al.* PET response criteria for solid tumors predict survival at 3-months after intra-arterial resin-based ⁹⁰Yttrium (⁹⁰Y) radioembolization therapy for unresectable intrahepatic cholangiocarcinoma. *Clinical Nuclear Medicine* 2014; **39**: 944–950.
- Tapp KN, Lea WB, Johnson MS *et al.* The impact of image reconstruction bias on PET/CT ⁹⁰Y dosimetry after radioembolization. *The Journal of Nuclear Medicine* 2014; **55**: 1452–1458.
- Samim M, El-Haddad GE, Molenaar IQ *et al.* [¹⁸F]Fluorodeoxyglucose PET for interventional oncology in liver malignancy. *PET Clinics* 2014; **9**: 469–495.
- Flamen P. Optimizing the use of PET with selective internal radiation therapy. *Future Oncology* 2014; **10** (Suppl): 73–75.
- Attarwala AA, Molina-Duran F, Büsing KA *et al.* Quantitative and qualitative assessment of yttrium-90 PET/CT imaging. *PLoS One* 2014; **9**: e110401.
- Martí-Climent JM, Prieto E, Elosúa C *et al.* PET optimization for improved assessment and accurate quantification of ⁹⁰Y-microsphere biodistribution after radioembolization. *Medical Physics* 2014; **41**: 092503.
- Sabet A, Meyer C, Aouf A *et al.* Early post-treatment FDG PET predicts survival after ⁹⁰Y microsphere radioembolization in liver-dominant metastatic colorectal cancer. *European Journal of Nuclear Medicine and Molecular Imaging* 2014; **42**: 370–376.
- Powerski MJ, Scheurig-Münkler C, Hamm B, Gebauer B. Impaired hepatic Gd-EOB-DTPA enhancement after radioembolisation of liver malignancies. *Journal of Medical Imaging and Radiation Oncology* 2014; **58**: 472–480.
- Pasciak AS, Bourgeois AC, Bradley YC. A comparison of techniques for ⁹⁰Y PET/CT image-based dosimetry following radioembolization with resin microspheres. *Frontiers in Oncology* 2014; **4**: 121.
- Walrand S, Hesse M, Wojcik R *et al.* Optimal design of Anger camera for bremsstrahlung imaging: Monte Carlo evaluation. *Frontiers in Oncology* 2014; **4**: 149.
- Bennink RJ, Cieslak KP, van Delden OM *et al.* Monitoring of total and regional liver function after SIRT. *Frontiers in Oncology* 2014; **4**: 152.
- Sabet A, Ahmadzadehfar H, Bruhman J *et al.* Survival in patients with hepatocellular carcinoma treated with ⁹⁰Y-microsphere radioembolization. Prediction by ¹⁸F-FDG PET. *Nuklearmedizin* 2014; **53**: 36-45.
- Morsbach F, Sah BR, Spring L *et al.* Perfusion CT best predicts outcome after radioembolization of liver metastases: a comparison of radionuclide and CT imaging techniques. *The European Society of Radiology* 2014; **24**: 1455–1465.
- Annunziata S, Treglia G, Caldarella C, Galiandro F. The role of ¹⁸F-FDG-PET and PET/CT in patients with colorectal liver metastases undergoing selective internal radiation therapy with yttrium-90: A first evidence-based review. *The Scientific World Journal* 2014; **2014**: 879469.
- Reiner C, Morsbach F, Sah B *et al.* Early treatment response evaluation after yttrium-90 radioembolization of liver malignancy with CT perfusion. *Journal of Vascular and Interventional Radiology* 2014; **25**: 747–759.
- Kao YH, Tan AE, Lo RH *et al.* Non-target activity detection by post-radioembolization Yttrium-90 PET/CT: Image assessment technique and case examples. *Frontiers in Oncology* 2014; **4**: 11.
- Pasciak AS, Bourgeois AC, McKinney JM *et al.* Radioembolization and the dynamic role of ⁹⁰Y PET/CT. *Frontiers in Oncology* 2014; **4**: 38.
- Singh P, Anil G. Yttrium-90 radioembolization of liver tumors: what do the images tell us? *Cancer Imaging* 2014; **13**: 645–657.
- Ahmadzadehfar H, Duan H, Haug AR *et al.* The role of SPECT/CT in radioembolization of liver tumours. *European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** Suppl 1: S115-124.
- Beylgeril V, Sofocleous CT, Carrasquillo JA. Extrahepatic visualization in the distribution of falciform artery in posttreatment Bremsstrahlung images after radioembolization with ⁹⁰Y microspheres. *Revista Española de Medicina Nuclear e Imagen Molecular* 2014; **33**: 178–179.

- Ahmadzadehfar H, Pieper CC, Ezziddin S *et al.* Radioembolization with ⁹⁰Y resin microspheres for HCC patients with extensive tumor thrombosis into the extrahepatic vessels. *Clinical Nuclear Medicine* 2014; **39**: 305–307.
- Bourgeois AC, Chang TT, Bradley YC *et al.* Intraprocedural yttrium-90 positron emission tomography/CT for treatment optimization of yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2014; **25**: 271–275.
- Camacho JC, Kokabi N, Xing M *et al.* Modified response evaluation criteria in solid tumors and European Association for the Study of the Liver criteria using delayed-phase imaging at an early time point predict survival in patients with unresectable intrahepatic cholangiocarcinoma following yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2014; **25**: 256–265.
- van den Hoven AF, Prince JF, Samim M *et al.* Posttreatment PET-CT-confirmed intrahepatic radioembolization performed without coil embolization, by using the antireflux Surefire Infusion System. *Cardiovascular and Interventional Radiology* 2014; **37**: 523–528.
- Amthauer H, Ulrich G, Grosser OS, Ricke J. Reply: Pretreatment dosimetry in HCC radioembolization with ⁹⁰Y glass microspheres cannot be invalidated with a bare visual evaluation of ^{99m}Tc-MAA uptake of colorectal metastases treated with resin microspheres. *The Journal of Nuclear Medicine* 2014; **55**: 1216–1218. [Comment on Ulrich *et al.* *Journal of Nuclear Medicine* 2013; **54**: 516–522.]
- Chiesa C, Lambert B, Maccauro M *et al.* Pretreatment dosimetry in HCC radioembolization with ⁹⁰Y glass microspheres cannot be invalidated with a bare visual evaluation of ^{99m}Tc-MAA uptake of colorectal metastases treated with resin microspheres. *The Journal of Nuclear Medicine* 2014; **55**: 1215–1216 [Comment on Ulrich *et al.* *Journal of Nuclear Medicine* 2013; **54**: 516–522.]
- Lam MG, Wondergem M, Elschot M, Smits ML. Reply: A clinical dosimetric perspective uncovers new evidence and offers new insight in favor of ^{99m}Tc-macroaggregated albumin for predictive dosimetry in ⁹⁰Y resin microsphere radioembolization. *Journal of Nuclear Medicine* 2013; **54**: 2192–2193. [Reply to Kao YH. *Cardiovascular and Interventional Radiology* 2013; **54**: 2191–2192.]
- Kao YH. A clinical dosimetric perspective uncovers new evidence and offers new insight in favor of ^{99m}Tc-macroaggregated albumin for predictive dosimetry in ⁹⁰Y resin microsphere radioembolization. *Journal of Nuclear Medicine* 2013; **54**: 2191–2192. [Comment on Wondergem M *et al.* *Journal of Nuclear Medicine* 2013; **54**: 1294–1301.]
- Adamus R, Pfister M, Uder M, Loose RW. Bildführungstechniken und navigation bei TACE, SIRT und TIPS [Image guiding techniques and navigation for TACE, SIRT and TIPS.]. *Der Radiologe* 2013; **53**: 1009–1016.
- Ulrich G, Dudeck O, Grosser O, Amthauer H. Reply: Results confounded by a disregard for basic dose-response radiobiology. *Journal of Nuclear Medicine* 2013; **54**: 1682–1683. [Kao YH. *Journal of Nuclear Medicine* 2013; **54**: 1682–1683. (Comment on Ulrich *et al.* *Journal of Nuclear Medicine* 2013; **54**: 516–522.)]
- Kao YH. Results confounded by a disregard for basic dose-response radiobiology. *Journal of Nuclear Medicine* 2013; **54**: 1682–1683. [Comment on Ulrich *et al.* *Journal of Nuclear Medicine* 2013; **54**: 516–522.]
- Lam MG, Goris ML, Iagaru AH *et al.* Prognostic utility of ⁹⁰Y radioembolization dosimetry based on fusion ^{99m}Tc-macroaggregated albumin-^{99m}Tc-sulfur colloid SPECT. *Journal of Nuclear Medicine* 2013; **54**: 2055–2061.
- Kukuk GM, Mürtz P, Träber F *et al.* Diffusion-weighted imaging with acquisition of three b-values for response evaluation of neuroendocrine liver metastases undergoing selective internal radiotherapy. *European Radiology* 2014; **24**: 267–276. Agnello F, Salvaggio G, Cabibbo G *et al.* Imaging appearance of treated hepatocellular carcinoma. *World Journal of Hepatology* 2013; **5**: 417–424.
- Ulrich G, Dudeck O, Grosser O, Amthauer H. Reply: Value of ^{99m}Tc-macroaggregated albumin SPECT for radioembolization treatment planning. *Journal of Nuclear Medicine* 2013; **54**: 1682. [Reply on Lam MG, Smits ML. *Journal of Nuclear Medicine* 2013; **54**: 1681–1682. (Comment on Ulrich *et al.* *Journal of Nuclear Medicine* 2013; **54**: 516–522.)]
- Gonzalez-Guindalini FD, Botelho MP, Harmath CB *et al.* Assessment of liver tumor response to therapy: Role of quantitative imaging. *Radiographics* 2013; **33**: 1781–1800.
- Zade AA, Rangarajan V, Purandare NC *et al.* ⁹⁰Y microsphere therapy: Does ⁹⁰Y PET/CT imaging obviate the need for ⁹⁰Y Bremsstrahlung SPECT/CT imaging? *Nuclear Medicine Communications* 2013; **34**: 1090–1096.

- Mamawan MD, Ong SC, Senupe JM. Post-⁹⁰Y radioembolization PET/CT scan with respiratory gating using time-of-flight reconstruction. *Journal of Nuclear Medicine Technology* 2013; **41**: 42.
- Rong X, Frey EC. A collimator optimization method for quantitative imaging: Application to Y-90 bremsstrahlung SPECT. *Medical Physics* 2013; **40**: 082504-1–080504-10.
- Fernández M, Hänscheid H, Mauxion T *et al.* A fast method for rescaling voxel S values for arbitrary voxel sizes in targeted radionuclide therapy from a single Monte Carlo calculation. *Medical Physics* 2013; **40**: 082502.
- Elschot M, Lam M, van den Bosch M *et al.* Quantitative Monte Carlo-based ⁹⁰Y SPECT reconstruction. *Journal of Nuclear Medicine* 2013; **54**: 1557–1563.
- Gates VL, Salem R, Lewandowski RJ. Positron emission tomography/CT after yttrium-90 radioembolization: Current and future applications. *Journal of Vascular and Interventional Radiology* 2013; **24**: 1153-1155.
- Kao Y-H, Steinberg JD, Tay Y-S *et al.* Post-radioembolization yttrium-90 PET/CT - part 2: Dose-response and tumor predictive dosimetry for resin microspheres. *EJNMMI Research* 2013; **3**: 57.
- Kao Y-H, Steinberg JD, Tay Y-S *et al.* Post-radioembolization yttrium-90 PET/CT - part 1: Diagnostic reporting. *EJNMMI Research* 2013; **3**: 56.
- Fourkal E, Veltchev I, Lin M *et al.* 3D inpatient dose reconstruction from the PET-CT imaging of ⁹⁰Y microspheres for metastatic cancer to the liver: Feasibility study. *Medical Physics* 2013; **40**: 081702-1–081702-10.
- Neperud J, Mahvash A, Garg N *et al.* Can imaging patterns of neuroendocrine hepatic metastases predict response yttrium-90 radioembolotherapy? *World Journal of Radiology* 2013; **5**: 241–247.
- Guo Y, Yaghai V, Salem R *et al.* Imaging tumor response following liver-directed intra-arterial therapy. *Abdominal Imaging* 2013; **38**: 1286–1299.
- Yu N, Srinivas SM, Difilippo FP, Xia P. In reply to Gates and Salem. *International Journal of Radiation Oncology Biology and Physics* 2013; **86**: 211–212. [Reply to Gates and Salem. *International Journal of Radiation Oncology Biology and Physics* 2013; **86**: 211.]
- Gates V, Salem R. In regard to Yu *et al.* *International Journal of Radiation Oncology Biology and Physics* 2013; **86**: 211. [Comment on Yu *et al.* *International Journal of Radiation Oncology Biology and Physics* 2013; **85**: 834–839.]
- Lam MG, Smits ML. Value of ^{99m}Tc-macroaggregated albumin SPECT for radioembolization treatment planning. *Journal of Nuclear Medicine* 2013; **54**: 1681–1682.. [Comment on Ulrich *et al.* *Journal of Nuclear Medicine* 2013; **54**: 516–522.]
- Palmowski M, Goedicke A, Vogg A *et al.* Simultaneous dual-isotope SPECT/CT with ^{99m}Tc- and ¹¹¹In-labelled albumin microspheres in treatment planning for SIRT. *European Radiology* 2013; **23**: 3062–3070.
- van den Hoven AF, Prince JF, Samim M *et al.* Erratum to: Posttreatment PET-CT-confirmed intrahepatic radioembolization performed without coil embolization, by using the antireflux Surefire Infusion System. *Cardiovascular and Interventional Radiology* 2013; **36**: 1721.
- Wongergem M, Smits ML, Elschot M *et al.* ^{99m}Tc-macroaggregated albumin poorly predicts the intrahepatic distribution of ⁹⁰Y resin microspheres in hepatic radioembolization. *Journal of Nuclear Medicine* 2013; **54**: 1294–1301.
- Fendler WP, Philippe Tiega DB, Ilhan H *et al.* Validation of several SUV-based parameters derived from ¹⁸F-FDG PET for prediction of survival after SIRT of hepatic metastases from colorectal cancer. *Journal of Nuclear Medicine* 2013; **54**: 1202–1208.
- Rong X, Ghaly M, Frey EC. Optimization of energy window for ⁹⁰Y Bremsstrahlung SPECT imaging for detection tasks using the ideal observer with model-mismatch. *Medical Physics* 2013 Jun; **40**: 062502 ePub doi: 10.1118/1.4805095.
- D'Arienzo M, Filippi L, Chiaramida P *et al.* Absorbed dose to lesion and clinical outcome after liver radioembolization with ⁹⁰Y microspheres: A case report of PET-based dosimetry. *Annals of Nuclear Medicine* 2013; **27**: 676–680.
- Yu N, Srinivas SM, Difilippo FP *et al.* Lung dose calculation with SPECT/CT for ⁹⁰Yttrium radioembolization of liver cancer. *International Journal of Radiation Oncology Biology and Physics* 2013; **85**: 834–839.
- Kucuk ON, Soydal C, Araz M *et al.* Prognostic importance of ¹⁸F-FDG uptake pattern of hepatocellular cancer patients who received SIRT. *Clinical Nuclear Medicine* 2013; **38**: e289–289.

- Soydal C, Kucuk ON, Gecim EI *et al.* The prognostic value of quantitative parameters of ^{18}F -FDG PET/CT in the evaluation of response to internal radiation therapy with yttrium-90 in patients with liver metastases of colorectal cancer. *Nuclear Medicine Communications* 2013; **34**: 501–506.
- Maturen KE, Feng MU, Wasnik AP *et al.* Imaging effects of radiation therapy in the abdomen and pelvis: evaluating "innocent bystander" tissues. *Radiographics* 2013; **33**: 599–619.
- Ulrich G, Dudeck O, Furth C *et al.* Predictive value of intratumoral $^{99\text{m}}\text{Tc}$ -macroaggregated albumin uptake in patients with colorectal liver metastases scheduled for radioembolization with ^{90}Y -microspheres. *Journal of Nuclear Medicine* 2013; **54**: 516–522.
- Kucuk ON, Soydal C, Araz M *et al.* Evaluation of the response to selective internal radiation therapy in patients with hepatocellular cancer according to pretreatment $^{99\text{m}}\text{Tc}$ -MAA uptake. *Clinical and Nuclear Medicine* 2013; **38**: 252–255.
- Chang TT, Bourgeois AC, Balius AM, Pasciak AS. Treatment modification of yttrium-90 radioembolization based on quantitative positron emission tomography/CT imaging. *Journal of Vascular Interventional Radiology* 2013; **24**: 333–337.
- Carson JP, Kuprat AP, Colby SM *et al.* Detecting distance between injected microspheres and target tumor via 3D reconstruction of tissue sections. *Conference proceedings: 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society* 2012; **2012**: 1149–1152.
- Mamawan MD, Ong SC, Senupe JM. Post- ^{90}Y radioembolization PET/CT scan with respiratory gating using time-of-flight reconstruction. *Journal of Nuclear Medicine Technology* 2013; **41**: 42. Sharma B, Martin A, Zerizer I. Positron emission tomography-computed tomography in liver imaging. *Seminars in ultrasound CT and MRI* 2013; **34**: 66–80.
- Elschot M, Vermolen BJ, Lam MG *et al.* Quantitative comparison of PET and Bremsstrahlung SPECT for imaging the in vivo yttrium-90 microsphere distribution after liver radioembolization. *PLoS One* 2013; **8**: e55742.
- Carlier T, Eugène T, Bodet-Milin C *et al.* Assessment of acquisition protocols for routine imaging of Y-90 using PET/CT. *EJNMMI Research*. 2013; **3**: 11.
- Rosenbaum CE, van den Bosch MA, Veldhuis WB *et al.* Added value of FDG-PET imaging in the diagnostic workup for yttrium-90 radioembolisation in patients with colorectal cancer liver metastases. *European Radiology* 2013; **23**: 931–917.
- Goedicke A, Berker Y, Verburg F *et al.* Study-parameter impact in quantitative 90-Yttrium PET imaging for radioembolization treatment monitoring and dosimetry. *IEEE Transactions in Medical Imaging* 2013; **32**: 485–492.
- Zerizer I, Al-Nahhas A, Towey D *et al.* The role of early ^{18}F -FDG PET/CT in prediction of progression-free survival after ^{90}Y radioembolization: comparison with RECIST and tumour density criteria. *European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39**: 1391–1399.
- Hicks RJ, Hofman MS. Is there still a role for SPECT–CT in oncology in the PET–CT era? *Nature Reviews Clinical Oncology* 2012; **9**: 712–720.
- Uliel L, Royal HD, Darcy MD *et al.* From the angio suite to the γ -camera: vascular mapping and $^{99\text{m}}\text{Tc}$ -MAA hepatic perfusion imaging before liver radioembolization—A comprehensive pictorial review. *Journal of Nuclear Medicine* 2012; **53**: 1736–1747.
- Roche G, Teo TK, Tan AE *et al.* Intra-arterial CT angiography visualization of arterial supply to inferior vena cava tumor thrombus prior to radioembolization of hepatocellular carcinoma. *Saudi Journal of Gastroenterology* 2012; **18**: 384–387
- Willowson K, Forwood N, Jakoby BW *et al.* Quantitative ^{90}Y image reconstruction in PET. *Medical Physics* 2012; **39**: 7153–7159.
- Flamen F, Hendlisz A, Vanderlinden B. Selective internal radiation therapy simulation using $^{99\text{m}}\text{Tc}$ -labelled macroaggregates of albumin and SPECT-CT. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ^{90}Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 54–56.
- Ricke J. Measuring the response to selective internal radiation therapy. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ^{90}Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 57–58.
- Ahmadzadehfar H, Sabet A, Meyer C *et al.* The importance of Tc-MAA SPECT/CT for therapy planning of radioembolization in a patient treated with bevacizumab. *Clinical and Nuclear Medicine* 2012; **37**: 1129–1130.

- Burgmans MC, Too CW, Kao YH *et al.* Computed tomography hepatic arteriography has a hepatic falciform artery detection rate that is much higher than that of digital subtraction angiography and ^{99m}Tc -MAA SPECT/CT: Implications for planning ^{90}Y radioembolization? *European Journal of Radiology* 2012; **81**: 3979–3984.
- Zalom M, Yu R, Friedman M *et al.* FDG PET/CT as a prognostic test after ^{90}Y radioembolization in patients with metastatic hepatic disease. *Clinical Nuclear Medicine* 2012; **37**: 862–865.
- Gensure RH, Foran DJ, Lee VM *et al.* Evaluation of hepatic tumor response to Yttrium-90 radioembolization therapy using texture signatures generated from contrast-enhanced CT images. *Academic Radiology* 2012; **19**: 1201–1207.
- Wu SY, Kuo JW, Chang TK *et al.* Preclinical characterization of ^{18}F -MAA, a novel PET surrogate of ^{99m}Tc -MAA. *Nuclear Medicine and Biology* 2012; **39**: 1026–1033.
- Kao YH, Tan EH, Lim KY *et al.* Yttrium-90 internal pair production imaging using first generation PET/CT provides high resolution images for qualitative diagnostic purposes. *British Journal of Radiology* 2012; **85**: 1018–1019.
- Tochetto SM, Töre HG, Chalian H *et al.* Colorectal liver metastasis after ^{90}Y radioembolization therapy: Pilot study of change in MDCT attenuation as a surrogate marker for future FDG PET response. *AJR American Journal of Roentgenology* 2012; **198**: 1093–1099.
- Weber K, Berger F, Mustafa M *et al.* [SPECT/CT for staging and treatment monitoring in oncology: Applications in differentiated thyroid cancer and liver tumors.] *Der Radiologe* 2012; **52**: 646–652.
- Rong X, Du Y, Frey EC. A method for energy window optimization for quantitative tasks that includes the effects of model-mismatch on bias: application to Y-90 bremsstrahlung SPECT imaging. *Physics in Medicine and Biology* 2012; **57**: 3711–3725.
- Rong X, Du Y, Ljungberg M *et al.* Development and evaluation of an improved quantitative ^{90}Y Bremsstrahlung SPECT method. *Medical Physics* 2012; **39**: 2346–2358.
- Jiang M, Fischman A, Nowakowski FS *et al.* Segmental perfusion differences on paired Tc-99m macroaggregated albumin (MAA) hepatic perfusion imaging and yttrium-90 (Y-90) Bremsstrahlung imaging studies in SIR-Sphere radioembolization: Associations with angiography. *Journal of Nuclear Medicine and Radiation Therapy* 2012; **3**: 122 ePub doi: 10.4172/2155-9619.1000122.
- Karaman B, Battal B, Alagoz E *et al.* Complete disappearance of uptake of FDG in the multifocal liver hemangioendothelioma after radioembolization therapy using yttrium-90 microspheres. *Annals of Nuclear Medicine* 2012; **26**: 440–443.
- D'Arienzo M, Chiamida P, Chiacchiararelli L *et al.* ^{90}Y PET-based dosimetry after selective internal radiotherapy treatments. *Nuclear Medicine Communications* 2012; **33**: 633–640.
- Kao YH, Tan AEH, Burgmans MC *et al.* Image-guided personalized predictive dosimetry by artery-specific SPECT/CT partition modeling for safe and effective ^{90}Y radioembolization. *Journal of Nuclear Medicine* 2012; **53**: 1–8.
- Haug AR, Tiega Donfack BP, Trumm C *et al.* ^{18}F -FDG PET/CT predicts survival after radioembolization of hepatic metastases from breast cancer. *Journal of Nuclear Medicine* 2012; **53**: 371–377.
- Gupta A, Levitin A, Shrikanthan S *et al.* Macroaggregated albumin injected in hepatic artery visualized in a recanalized paraumbilical vein. *Clinical Nuclear Medicine* 2012; **37**: 80–81.
- Gupta A, Gill A, Shrikanthan S *et al.* Nontargeted Y-90 microsphere radioembolization to duodenum visualized on Y-90 PET/CT and Bremsstrahlung SPECT/CT. *Clinical Nuclear Medicine* 2012; **37**: 98–99.
- Haggerty JE, Vaidya S, Kooy T *et al.* Identification of the falciform artery on nuclear medicine imaging with successful coil embolization for planned Y-90 therapy. *Clinical Nuclear Medicine* 2012; **37**: 105–107.
- Lenoir L, Edeline J, Rolland Y *et al.* Usefulness and pitfalls of MAA SPECT/CT in identifying digestive extrahepatic uptake when planning liver radioembolization. *European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39**: 872–880.
- Bagni O, D'Arienzo M, Chiamida P *et al.* ^{90}Y -PET for the assessment of microsphere biodistribution after selective internal radiotherapy. *Nuclear Medicine Communications* 2012; **33**: 198–204.
- Goryawala M, Guillen M, Cabrerizo M *et al.* A 3D liver segmentation method with parallel computing for Selective Internal Radiation Therapy. *IEEE Transactions on Information Technology in Biomedicine* 2012; **16**: 62–69.

- Galizia MS, Töre HG, Chalian H *et al.* MDCT necrosis quantification in the assessment of hepatocellular carcinoma response to yttrium 90 radioembolization therapy: Comparison of two-dimensional and volumetric techniques. *Academic Radiology* 2012; **19**: 48–54.
- Ahmadzadehfar H, Muckle M, Sabet A *et al.* The significance of Bremsstrahlung SPECT/CT after yttrium-90 radioembolization treatment in the prediction of extrahepatic side effects. *European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39**: 309–315.
- Großer OS, Nultsch M, Laatz K *et al.* Radioembolisation mit ⁹⁰Y-markierten mikrosphären: posttherapeutische therapievalidierung mit bremsstrahlungs-SPECT [Radioembolization with ⁹⁰Y-labeled microspheres: post-therapeutic therapy validation with Bremsstrahlung-SPECT]. *Zeitschrift für Medizinische Physik* 2012; **21**: 274–280. [in German]
- Schmidt GP, Paprottka Pa, Jakobs TF *et al.* FDG–PET–CT and whole-body MRI for triage in patients planned for radioembolisation therapy. *European Journal of Radiology* 2012; **81**: e269–276.
- Dudeck O, Wilhelmsen S, Ulrich G *et al.* Effectiveness of repeat angiographic assessment in patients designated for radioembolization using yttrium-90 microspheres with initial extrahepatic accumulation of technetium-99m macroaggregated albumin: A single center's experience. *Cardiovascular and Interventional Radiology* 2012; **35**: 1083–1093.
- Walrand S, Hesse M, Demonceau G *et al.* Yttrium-90-labeled microsphere tracking during liver selective internal radiotherapy by bremsstrahlung pinhole SPECT: feasibility study and evaluation in an abdominal phantom. *European Journal of Nuclear Medicine and Molecular Imaging Research* 2011; **1**: 32.
- Chalian H, Töre HG, Horowitz JM *et al.* Radiologic assessment of response to therapy: Comparison of RECIST versions 1.1 and 1.0. *Radiographics* 2011; **31**: 2093–2105.
- Kao YH, Tan EH, Ng CE *et al.* Yttrium-90 Time-of-Flight PET/CT is superior to Bremsstrahlung SPECT/CT for postradioembolization imaging of microsphere biodistribution. *Clinical Nuclear Medicine* 2011; **36**: e186–187.
- Lacin S, Oz I, Ozkan E *et al.* Intra-arterial treatment with ⁹⁰yttrium microspheres in treatment-refractory and unresectable liver metastases of neuroendocrine tumors and the use of ¹¹¹In-octreotide scintigraphy in the evaluation of treatment response. *Cancer Biotherapy & Radiopharmaceuticals* 2011; **26**: 631–637.
- van Elmbt L, Vandenberghe S, Walrand S *et al.* Comparison of yttrium-90 quantitative imaging by TOF and non-TOF PET in a phantom of liver selective internal radiotherapy. *Physics in Medicine and Biology* 2011; **56**: 6759.
- Wong KM, Tan BS, Taneja M *et al.* Cone beam computed tomography for vascular interventional radiology procedures: Early experience. *Annals, Academy of Medicine, Singapore* 2011; **40**: 308–314.
- Gartenschlaeger M, Maus S, Buchholz H *et al.* Investigation for extrahepatic shunt before SIRT by PET/CT with ⁶⁸Ga-MAA. *Nuklearmedizin* 2011; **50**: N37–N38.
- Kao YH, Tan EH, Teo TK *et al.* Imaging discordance between hepatic angiography versus Tc-99m-MAA SPECT/CT: A case series, technical discussion and clinical implications. *Annals of Nuclear Medicine* 2011; **25**: 669–676.
- Becker C, Waggerhauser T, Tiling R *et al.* C-arm computed tomography compared with positron emission tomography/computed tomography for treatment planning before radioembolization. *Cardiovascular and Interventional Radiology* 2011; **34**: 550–556.
- Vouche M, Vanderlinden B, Delatte P *et al.* New imaging techniques for ⁹⁰Y microsphere radioembolization. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 113 ePub doi: 10.4172/2155-9619.1000113.
- Sabet A, Ahmadzadehfar H, Muckle M *et al.* Significance of oral administration of sodium perchlorate in planning liver-directed radioembolization. *Journal of Nuclear Medicine* 2011; **52**: 1063–1067.
- Willowson K, Bailey DL, Baldock C. Quantifying lung shunting during planning for radio-embolization. *Physics in Medicine and Biology* 2011; **56**: N145–N152.
- Crocetti L, Della Pina C, Cioni D, Lencioni R. Peri-intraprocedural imaging: US, CT, and MRI. *Abdominal Imaging* 2011; **36**: 648–660.
- Haug AR, Heinemann V, Bruns CJ *et al.* ¹⁸F-FDG PET independently predicts survival in patients with cholangiocellular carcinoma treated with ⁹⁰Y microspheres. *European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38**: 1037–1045.

- O'Doherty J, Scuffham J, Hinton P. The importance of scatter correction for the assessment of lung shunting prior to yttrium-90 radioembolization therapy. *Nuclear Medicine Communications* 2011; **32**: 628–634.
- Kim YC, Kim YH, Um SH *et al.* Usefulness of Bremsstrahlung Images after intra-arterial Y-90 resin microsphere radioembolization for hepatic tumors. *Nuclear Medicine and Molecular Imaging* 2011; **45**: 59–67.
- Wissmeyer M, Heinzer S, Majno P *et al.* ⁹⁰Y Time-of-flight PET/MR on a hybrid scanner following liver radioembolisation (SIRT). *European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38**: 1744–1745.
- Bester L, Hobbins PG, Wang SC, Salem R. Imaging characteristics following ⁹⁰yttrium microsphere treatment for unresectable liver cancer. *Journal of Medical Imaging and Radiation Oncology* 2011; **55**: 111–118.
- Walrand S, Flux GD, Konijnenberg MW *et al.* Dosimetry of yttrium-labelled radiopharmaceuticals for internal therapy: ⁸⁶Y or ⁹⁰Y imaging? *European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** Suppl 1: S57–68.
- Ahmadzadehfar H, Sabet A, Muckle M *et al.* ^{99m}Tc-MAA/⁹⁰Y-Bremsstrahlung SPECT/CT after simultaneous Tc-MAA/⁹⁰Y-microsphere injection for immediate treatment monitoring and further therapy planning for radioembolization. *European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38**: 1281–1288.
- Kim KW, Lee JM, Choi BI. Assessment of the treatment response of HCC. *Abdominal Imaging* 2011; **36**: 300–314.
- Gates VL, Esmail AA, Marshall K *et al.* Internal pair production of ⁹⁰Y permits hepatic localization of microspheres using routine PET: Proof of concept. *Journal of Nuclear Medicine* 2011; **52**: 72–76.
- Morgan B, Kennedy AS, Lewington V *et al.* Intra-arterial brachytherapy of hepatic malignancies: watch the flow. *Nature Reviews Clinical Oncology* 2011; **8**:115–120.
- Monsky WL, Garza AS, Kim I *et al.* Treatment planning and volumetric response assessment for yttrium-90 radioembolization: semiautomated determination of liver volume and volume of tumor necrosis in patients with hepatic malignancy. *Cardiovascular and Interventional Radiology* 2011; **34**: 306–318.
- Lambert B, Mertens J, Sturm EJ *et al.* ^{99m}Tc-labelled macroaggregated albumin (MAA) scintigraphy for planning treatment with ⁹⁰Y microspheres. *European Journal of Nuclear Medicine and Molecular Imaging* 2010; **37**: 2328–2333.
- Pua BB, Sofocleous CT. Imaging to optimize liver tumor ablation. *Imaging in Medicine* 2010; **2**: 433–443.
- Ahmadzadehfar H, Sabet A, Biermann K *et al.* The significance of ^{99m}Tc-MAA SPECT/CT liver perfusion imaging in treatment planning for ⁹⁰Y-microsphere selective internal radiation treatment. *Journal of Nuclear Medicine* 2010; **51**: 1206–1212.
- Dudeck O, Zeile M, Wybranski C *et al.* Early prediction of anticancer effects with diffusion-weighted MR imaging in patients with colorectal liver metastases following selective internal radiotherapy. *European Radiology* 2010; **20**: 2699–2706.
- Rault E, Staelens S, Van Holen R *et al.* Fast simulation of yttrium-90 bremsstrahlung photons with GATE. *Medical Physics* 2010; **37**: 2943–2950.
- Tochetto SM, Rezai P, Rezvani M *et al.* Does multidetector CT attenuation change in colon cancer liver metastases treated with ⁹⁰Y help predict metabolic activity at FDG PET? *Radiology* 2010; **255**: 164–172.
- Lhommel R, van Elmbt L, Goffette P *et al.* Feasibility of ⁹⁰Y TOF PET-based dosimetry in liver metastasis therapy using SIR-Spheres. *European Journal of Nuclear Medicine and Molecular Imaging* 2010; **37**: 1654–1662.
- Knesaurek K, Machac J, Muzinic M *et al.* Quantitative comparison of yttrium-90 (⁹⁰Y)-microspheres and technetium-99m (^{99m}Tc)-macroaggregated albumin SPECT images for planning ⁹⁰Y therapy of liver cancer. *Technology in Cancer Research & Treatment* 2010; **9**: 253–262.
- Wong CY, Gates VL, Tang B *et al.* Fluoro-2-deoxy-D-glucose positron emission tomography/computed tomography predicts extrahepatic metastatic potential of colorectal metastasis: a practical guide for yttrium-90 microsphere liver-directed therapy. *Cancer Biotherapy and Radiopharmaceuticals* 2010; **25**: 233–236.

- Heusner TA, Hamami ME, Ertle J *et al.* Angiography-based C-Arm CT for the assessment of extrahepatic shunting before radioembolization. *RoFo : Fortschritte auf dem Gebiete der Röntgenstrahlen und der Nuklearmedizin* 2010; **182**: 603–608.
- Werner MK, Brechtel K, Beyer T *et al.* PET/CT for the assessment and quantification of ⁹⁰Y biodistribution after selective internal radiotherapy (SIRT) of liver metastases. *European Journal of Nuclear Medicine and Molecular Imaging* 2010; **37**: 407–408.
- Pasciak AS, Erwin WD. Effect of voxel size and computation method on Tc-99m MAA SPECT/CT-based dose estimation for Y-90 microsphere therapy. *IEEE Transactions on Medical Imaging* 2009; **28**: 1754–1758.
- Mesoloras G, Sandison GA, Gulec SA. Measurement of functional tumor volume for fluoro-deoxyglucose-positive primary and metastatic liver tumors: validation of optimal threshold value technique. *Journal of Interventional Oncology* 2009; **2**: 95–104.
- Vasamilliet J, Hohenberger P, Schoenberg S *et al.* Treatment monitoring with ¹⁸F-FDG PET in metastatic thymoma after ⁹⁰Y-Dotatoc and selective internal radiation treatment (SIRT). *Hellenic Journal of Nuclear Medicine* 2009; **12**: 271–273.
- Wahl RL, Jacene H, Kasamon Y, Lodge MA. From RECIST to PERCIST: Evolving considerations for PET response criteria in solid tumors. *Journal of Nuclear Medicine* 2009; **50** (Suppl 1): 122S–150S.
- Dierckx R, Maes A, Peeters M, Van De Wiele C. FDG PET for monitoring response to local and locoregional therapy in HCC and liver metastases. *Quarterly Journal of Nuclear Medicine and Molecular Imaging* 2009; **53**: 336–342.
- Sato KT, Omary RA, Takehana C *et al.* The role of tumor vascularity in predicting survival after yttrium-90 radioembolization for liver metastases. *Journal of Vascular and Interventional Radiology* 2009; **20**: 1564–1569.
- Lhommel R, Goffette P, Van den Eynde M *et al.* Yttrium-90 TOF PET scan demonstrates high-resolution biodistribution after liver SIRT. *European Journal of Nuclear Medicine and Molecular Imaging* 2009; **36**: 1696.
- Campbell JM, Wong CO, Muzik O *et al.* Early dose response to Yttrium-90 microsphere treatment of metastatic liver cancer by a patient-specific method using single photon emission computed tomography and positron emission tomography. *International Journal of Radiation Oncology, Biology and Physics* 2009; **74**: 313–320.
- Allen-Auerbach M, Weber WA. Measuring response with FDG-PET: methodological aspects. *The Oncologist* 2009; **14**: 369–377.
- Fabbri C, Sarti G, Cremonesi M *et al.* Quantitative analysis of ⁹⁰Y Bremsstrahlung SPECT-CT images for application to 3D patient-specific dosimetry. *Cancer Biotherapy & Radiopharmaceuticals* 2009; **24**: 145–154.
- Hamami ME, Poeppel TD, Müller S *et al.* SPECT/CT with ^{99m}Tc-MAA in radioembolization with ⁹⁰Y microspheres in patients with hepatocellular cancer. *The Journal of Nuclear Medicine* 2009; **50**: 688–692.
- Louie JD, Kothary N, Kuo WT *et al.* Incorporating cone-beam CT into the treatment planning for Yttrium-90 radioembolization. *Journal of Vascular and Interventional Radiology* 2009; **20**: 606–613.
- Murthy R, Mutha P, Madoff DC *et al.* Establishment of the radiation effect of yttrium-90 microspheres: Role of C-arm CT. *Journal of Vascular and Interventional Radiology* 2009; **20**: 422–424.
- Eisenhauer EA, Therasse P, Bogaerts J *et al.* New response evaluation criteria in solid tumours: revised RECIST guideline (version 1.1). *European Journal of Cancer* 2009; **45**: 228–247.
- Ibrahim SM, Nikolaidis P, Miller FH *et al.* Radiologic findings following Y90 radioembolization for primary liver malignancies. *Abdominal Imaging* 2009; **34**: 566–581.
- Rose SC, Iussich G, Casola G *et al.* Comparison of CT angiography and digital subtraction angiography for displaying extrahepatic arterial anatomy relevant to planning regional arterial therapy for liver cancers. *Journal of Interventional Oncology* 2008; **1**: 19–27.
- Flamen P, Vanderlinden B, Delatte P *et al.* Multimodality imaging can predict the metabolic response of unresectable colorectal liver metastases to radioembolization therapy with Yttrium-90 labeled resin microspheres. *Physics in Medicine and Biology* 2008; **53**: 6591–6603.
- Atassi B, Bangash AK, Bahrani A *et al.* Multimodality imaging following ⁹⁰Y radioembolization: a comprehensive review and pictorial essay. *Radiographics* 2008; **28**: 81–99.

- Sebastian AJ, Szyszko T, Al-Nahhas A, Nijran K, Tait NP. Evaluation of hepatic angiography procedures and bremsstrahlung imaging in selective internal radiation therapy: a two-year single-center experience. *Cardiovascular and Interventional Radiology* 2008; **31**: 643–649.
- Fletcher JW, Djulbegovic B, Soares HP *et al.* Recommendations on the use of ¹⁸F-FDG PET in oncology. *Journal of Nuclear Medicine* 2008; **49**: 480–508.
- Lin M, Shon IH, Wilson R *et al.* Treatment response in liver metastases following ⁹⁰Y SIR-Spheres: an evaluation with PET. *Hepato-Gastroenterology* 2007; **54**: 910–912.
- Szyszko T, Khodjibekova M, Singh A, AL-Nahhas A. Role of nuclear medicine in the treatment and follow-up of unresectable liver tumours treated with yttrium-90 microspheres. *RAD Magazine* June 2007; **33**: 25.
- Tehrani-pour N, Al-Nahhas A, Canelo R *et al.* Concordant F-18 FDG PET and Y-90 Bremsstrahlung scans depict selective delivery of Y-90-microspheres to liver tumors: Confirmation with histopathology. *Clinical Nuclear Medicine* 2007; **32**: 371–374.
- Welsh JS. Radiographically identified necrosis after ⁹⁰Y microsphere brachytherapy: A new standard for oncologic response assessment? *American Journal of Roentgenology* 2007; **188**: 765–767.
- Keppke AL, Salem R, Reddy D *et al.* Imaging of hepatocellular carcinoma after treatment with yttrium-90 microspheres. *American Journal of Roentgenology* 2007; **188**: 768–775.
- Miller FH, Keppke AL, Reddy D *et al.* Response of liver metastases after treatment with yttrium-90 microspheres: role of size, necrosis, and PET. *American Journal of Roentgenology* 2007; **188**: 776–783.
- Szyszko T, AL-Nahhas A, Canelo R *et al.* Assessment of response to treatment of unresectable liver tumours with ⁹⁰Y microspheres: Value of FDG PET versus computed tomography. *Nuclear Medicine Communications* 2007; **28**: 15–20.
- Das CJ, Paul SB, Madhusudhan KS, Gulati MS. Update in liver imaging. *Tropical Gastroenterology* 2007; **28**: 149–154.
- Boppudi S, Wickremesekera S, Nowitz M *et al.* Evaluation of the role of CT in the assessment of response to selective internal radiation therapy in patients with colorectal liver metastases. *Australasian Radiology* 2006; **50**: 570–577.
- Rivet M. Monitoring ⁹⁰Y-SIR-Spheres treatment response with ¹⁸F-FDG-PET. *ANZ Nuclear Medicine* 2006; September: 3–4.
- Rhee TK, Omary RA, Gates V *et al.* The effect of catheter-directed CT angiography on yttrium-90 radioembolization treatment of hepatocellular carcinoma. *Journal of Vascular and Interventional Radiology* 2005; **16**: 1085–1091.
- Bienert M, McCook B, Carr B *et al.* Sequential FDG PET/CT in ⁹⁰Y microsphere treatment of unresectable colorectal liver metastases. *European Journal of Nuclear Medicine and Molecular Imaging* 2005; **32**: 723.
- Bienert M, McCook B, Carr B *et al.* ⁹⁰Y microsphere treatment of unresectable liver metastases: changes in ¹⁸F-FDG uptake and tumour size on PET/CT. *European Journal of Nuclear Medicine and Molecular Imaging* 2005; **32**: 778–787.
- Wong C, Qing F, Savin M *et al.* Reduction of metastatic load to liver after intraarterial hepatic yttrium-90 radioembolization as evaluated by [¹⁸F]Fluorodeoxyglucose positron emission tomographic imaging. *Journal of Vascular and Interventional Radiology* 2005; **16**: 1101–1106.
- Sarfraz M, Wul X, Lodge MA, Yu CX. Automatic CT-SPECT registration of livers treated with radioactive microspheres. *Physics in Medicine and Biology* 2004; **49**: N131–137.
- Therasse P, Arbuck SG, Eisenhauer EA *et al.* New guidelines to evaluate the response to treatment in solid tumors. *Journal of the National Cancer Institute* 2000; **92**: 205–216.
- Lau WY, Leung TW, Ho S *et al.* Diagnostic pharmaco-scintigraphy with hepatic intra-arterial technetium-99m macroaggregated albumin in the determination of tumour to non-tumour uptake ratio in hepatocellular carcinoma. *The British Journal of Radiology* 1994; **67**: 136–139.
- Bierman Hr, Byron RL Jr, Kelley KH, Grady A. Studies on the blood supply of tumors in man. III. Vascular patterns of the liver by hepatic arteriography *in vivo*. *Journal of the National Cancer Institute* 1951; **12**: 107–131.

Abstracts on Imaging

Matthies P, Mesri M, Pinto FA *et al.* Patient specific scatter reduction in SIRT gamma camera images. *Phys Med* 2018; **45** (Suppl 1): S5–S6 Abs. 247.

Walker MD, Porter CA, McGowan DR. PET imaging for Y-90 SIRT: effect of liver motion on dosimetry. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP457.

Thyroff A, Sanders JC, Kuwert T *et al.* Differences between free-breathing and breath-hold CT for application in SIRT dosimetry. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. OP018.

Sancho L, Rodríguez-Fraile M, Prieto E *et al.* Usefulness of ^{99m}Tc-MAA scan for ⁹⁰Y-radioembolization planning in 532 patients. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. OP016.

Richetta E, Manfredi M, Pasquino M *et al.* Comparison of dosimetric methods in ⁹⁰Y microspheres hepatic radioembolization related to dose-response evaluation. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP464.

Parikh PJ, Maughan N, Weiner A *et al.* Clinical impact of PET/MRI dosimetry after radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP132.

Moran V, Prieto E, Zubiria A *et al.* Personalized dosimetry planning in radioembolization with ⁹⁰Y-microspheres: methodological considerations. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP470.

Levillain H, Marin G, Vanderlinden B *et al.* Quality assurance of activity administration in selective internal radiation therapy (SIRT). *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP465.

Ersahin D, Chen M. Incidental findings on low dose CTs performed as part of SPECT-CT following yttrium-90 resin microsphere treatment for liver cancer and metastases. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP147.

Craig AJ, Murray I, Denis-Bacelar A *et al.* A voxel-based correction method to allow quantitative dosimetry comparisons of pre- and post-therapy imaging in ⁹⁰Y-microsphere treatments. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP459.

Botta F, De Nile M, Vitali S *et al.* The impact of missing attenuation or scatter correction on ^{99m}Tc MAA SPECT based dosimetry for ⁹⁰Y microsphere liver radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): Abs. EP460.

Kost S, Lin S, Yu N. SU-F-T-687: Comparison of SPECT/CT-based methodologies for estimating lung dose from Y-90 radioembolization. *Medical Physics* 2016; **43**: 3622.

Lin M, Saboury B. WE-AB-BRA-05: PET-guided delivery quality evaluation of yttrium-90 microsphere radioembolization for hepatocellular carcinoma patients: The optimal sequence of radioembolization and chemoembolization treatments. *Medical Physics* 2016; **43**: 3792.

Hartenbach M, Weber S, Hartenbach S *et al.* Prognostic value of combined ^{99m}Tc-MAA-SPECT/CT and [¹⁸F]Fluorethylcholine-PET/CT in patients suffering from advanced hepatocellular carcinoma prior to radioembolization. *European Journal of Nuclear Medicine and Molecular Imaging* 2016; **43** (Suppl 1): S17 Abs: OP032.

Cho MT, Kessler J, Park J *et al.* A single institute retrospective trial of concurrent chemotherapy with SIR-Spheres versus SIR-Spheres alone in patients with chemotherapy-resistant colorectal cancer liver metastases. *Journal of Clinical Oncology* 2016; **34** (Suppl 4S) Abs: 770.

Saad N, Fowler K, Maughan N *et al.* PET/MRI of hepatic ⁹⁰Y microsphere deposition determines individual tumor response. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S68 Abs. 144.

Mahvash A, Mikell J, Siman W *et al.* Quantifying differences in tumor uptake between planning ^{99m}Tc -MAA and post-therapy ^{90}Y microsphere SPECT/CT using the balloon occlusion technique for common hepatic artery administration. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S111-112 Abs. 243.

Hasan O, Murillo P, Azizi R *et al.* Predicting post-therapy response to radioembolization using computational image analysis in patients with hepatocellular carcinoma. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S109 Abs. 145.

Bishay V, Fischman A, Biederman D *et al.* Impact of vessel identification and guidance software on fluoroscopy time during planning angiography prior to ^{90}Y yttrium radioembolization segmentectomy. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S64 Abs. 134.

Colletini F, DoMing D, David W *et al.* 3D quantification of viable tumor volume in patients with hepatocellular carcinoma predicts the hepato-pulmonary shunt fraction before ^{90}Y radioembolization. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S155 Abs.343.

Lam A, Rapp G, Bui K *et al.* Pre and post-procedural evaluation of imaging biomarkers after radioembolization for hepatocellular carcinoma as an indicator of progression. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S153 Abs. 338.

Kim K, Burke C, Isaacson A *et al.* Aborted yttrium 90 radioembolization in patients with hepatocellular carcinoma after mapping hepatic arteriography and lung shunt study. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S68 Abs. 143.

Kokabi N, Camacho J, Schuster D *et al.* Estimating differences in ^{90}Y dosimetry in patients with intrahepatic cholangiocarcinoma treated with resin-based and glass-based microspheres by a simple semi-quantitative method. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S155 Abs. 342.

Naydenov A, Harris W, Johnson G *et al.* Tumor vascularity does not predict the response of colorectal cancer liver metastases to yttrium-90 radioembolization. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S62–S63 Abs. 131.

Mikell J, Mahvash A, Mourtada F *et al.* Implications of four different voxel-based dosimetry models for liver and lung following ^{90}Y microsphere therapy. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26** (Suppl): S190 Abs. 435.

Gordon AC, Gates VL, White SB *et al.* ^{90}Y PET/CT dosimetry after radioembolization in rabbit VX2 liver tumor model: Comparisons to MIRDOSE calculations and *ex vivo* microsphere uptake. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Paper 32.

Hardman R, O'Hara R, Crawford H *et al.* Comparison of cone beam CT angiography to preprocedural CT or MRI for yttrium-90 hepatic dosimetry. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2015; **26** (Suppl): S120 Abs. 262.

Magnetta MJ, Zhang D, Steven L *et al.* EASL and mRECIST better predict survival after yttrium-90 radioembolization therapy compared to RECIST and WHO in metastatic unresectable colorectal cancer in the liver. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Paper 8.

Tong R, Kohi M, Olorunsola D *et al.* Tc-99m MAA liver perfusion scan prior to ^{90}Y radioembolization: Lung shunt fraction and beyond? *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 37.

Veltchev I, Fourkal E, Doss M *et al.* Physical aspects and clinical applications of post-treatment yttrium-90 PET-based dosimetry. *American Association of Physicists in Medicine Annual Meeting, Medical Physics* 2015; **42**: 3537 Abs. SU-F-BRA-15.

Maneru F, Otal A, Gracia M *et al.* ^{90}Y Microspheres dosimetry calculation with Voxel-S-Value method: A simple use in the clinic. *American Association of Physicists in Medicine Annual Meeting, Medical Physics* 2015; **42**: 3330 Abs. SU-E-T-02.

- Grigolini A, Mantarro A, Lauretti DL et al. ⁹⁰Y-radioembolization of hypovascular liver lesions: Role of cone-beam CT. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2015*; Abs. P-291.
- Gear J, Cummings C, Tapner M et al. A 3D printed anthropomorphic phantom for validating quantitative SIRT imaging in multicentre trials. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. P872.
- Wright C, Zhang J, Binzel K et al. Phase I clinical experience of post-radioembolization yttrium-90 imaging using next generation digital PET/CT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. P856.
- Zhang J, Wright C, Binzel K et al. Feasibility of accelerating yttrium-90 PET by optimizing PET volume overlap. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. P103.
- Rowley LM, McGowan DR, Bradley KM et al. Optimisation of Y-90 post-SIRT PET imaging on GE discovery systems. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. P078.
- D'Arienzo M, Tapner M, Spezi E et al. Comparison of absorbed dose calculations for non-uniform activity distributions obtained via ⁹⁰Y-PET/CT after liver radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. PW120.
- Craig AJ, Murray I, Denis-Bacelar AM et al. Optimising methodologies for comparison of ^{99m}Tc-MAA and ⁹⁰Y-microsphere distributions. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. PW119.
- da Costa LG, Santos JAM, Gonçalves B et al. Response evaluation criteria in solid tumours (RECIST) in a group of patients submitted to Y-90 resin microspheres radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. PW118.
- Abbott EM, Craig AJ, Franklin JM et al. NTCP calculations for Selective Internal RadioTherapy (SIRT) - demonstration of the methodology. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. PW101.
- Chiesa C, Mira M, Maccauro M et al. The intrinsic absorbed dose resolution concept in voxel dosimetry - Application to ⁹⁰Y microsphere radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. OP613.
- Finessi M, Gallio E, Richetta E et al. Comparison of different dosimetric methods for tumor and normal tissue predicted absorbed dose calculation in liver radioembolization: Preliminary results. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. OP575.
- Bernardini M, Thevenet H, Berthold C et al. Reconstruction, volumetry and dosimetry optimisation for ^{99m}Tc-SPECT and ⁹⁰Y-PET images: towards reliable DVH for SIRT treatments. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. OP335.
- Tatsch K, Touati J, Leicht M et al. Regularized reconstruction results in a major improvement of Y-90 PET/CT image quality after SIRT with Y-90 microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. OP333.
- Sanders JC, Vija AH, Kuwert T et al. Effect of data-driven respiratory gating on radioactivity quantification in liver lesions for pre-radioembolization Tc-99m-MAA SPECT/CT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. OP331.
- Pacilio M, Chiesa C, Ferrari ME et al. Previsional dosimetry based on ^{99m}Tc-MAA SPECT for radioembolization of liver lesions with ⁹⁰Y-loaded microspheres: Impact of attenuation correction, scatter correction and calibration. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. OP330.

- Jung E, Kim Y, Cho S. Prognostic effect of arterioportal shunt in radioembolization using yttrium-90 resin microspheres for hepatocellular carcinoma with portal vein thrombosis - a single center study. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Poster 59.
- Prince J, van den Hoven A, Slijderink S *et al.* C-arm CT during radioembolization requires a specialized protocol: Optimization for extrahepatic shunting and parenchymal enhancement. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Poster 24.
- Prince J, van den Hoven AF, Krijger GC *et al.* ^{99m}Tc -MAA SPECT/CT lung shunt estimations are more accurate than those obtained from planar scintigraphy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2015*; **42** (Suppl 1): Abs. OP329.
- Novelli P, Wilderman S, Dewaraja Y. Bremsstrahlung SPECT/CT, PET/CT, and intraarterial CTA in patients treated with yttrium-90 radioembolization. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2015*; P-214.
- Grigolini A, Mantarro A, Lauretti DL *et al.* Y90-radioembolization of hypovascular liver lesions: Role of cone-beam CT. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2015*; Abs. P-291.
- Fleckenstein FN, Duran R, Chapiro J *et al.* Liver metastases from renal cell carcinoma: Early response assessment after intraarterial therapy using 3D quantitative tumor enhancement analysis on MRI. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Poster 86.
- Safar BO, Gurajala R, Shah S *et al.* Post-radioembolization PET/MR: A score to the future. *World Conference on Interventional Oncology (WCIO) meeting 2015*; **26**: Poster 75.
- Shady W, Sotirchos VS, Pandit-Taskar N *et al.* Enhancement patterns of colorectal liver metastases on pre-sirt mapping CT arteriography correlates with FDG-PET SUV_{max} metabolic response. *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2015*; **26** (Suppl): S189 Abs. 433.
- Park M, Choi Y, Cho A *et al.* Prediction of delivered dose based on a joint histogram of CT and FDG PET images. *American Association of Physicists in Medicine Annual Meeting, Medical Physics 2015*; **42**: 3220 Abs. SU-D-201-02.
- Maughan N, Conti M, Parikh P *et al.* Phantom study to determine optimal PET reconstruction parameters for PET/MR imaging of Y-90 microspheres following radioembolization. *American Association of Physicists in Medicine Annual Meeting, Medical Physics 2015*; **42**: 3221 Abs. SU-D-201-05.
- Siman W, Kappadath S, Mawlawi O. Performance characterization of regularized-reconstruction algorithm for ^{90}Y PET/CT images. *American Association of Physicists in Medicine Annual Meeting, Medical Physics 2015*; **42**: 3658 Abs. WE-AB-204-01.
- Lin M, Choi E, Chuong M *et al.* Molecular-imaging based assessment of liver complications for yttrium-90 microsphere treatments: Can existing NTCP models explain clinical outcomes? *American Association of Physicists in Medicine Annual Meeting, Medical Physics 2015*; **42**: 3659 Abs. WE-AB-204-02.
- Haug AR, Goritschan A, Ilhan H *et al.* Systemic analysis and correlation of MAA uptake of liver tumors and Bremsstrahlung SPECT after radioembolization in 502 Patients. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2014*; **41** (Suppl 2): Abs. OP355.
- Walrand S, Hesse M, Lhommel R, Jamar R. Dedicated bremsstrahlung static SPECT for fast dosimetry assessment during liver radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2014*; **41** (Suppl 2): Abs. OP358.
- Volkan-Salanci B, Bozkurt FM, Peynircioglu B *et al.* The value of F-18 FDG PET/CT for the early response evaluation of the Y-90 microsphere therapy in colorectal cancer patients with liver metastasis. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2014*; **41** (Suppl 2): Abs. OP431.
- Scott CJ, Kalogianni E, Livieratos L *et al.* Quantitative comparison of dose distribution between ^{99m}Tc -MAA and ^{90}Y -microspheres for selective internal radiotherapy (SIRT). *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging 2014*; **41** (Suppl 2): Abs. PW058.
- Sanchez M, Gardin I, Lebtahi R *et al.* Implementation and validation of a collapsed cone superposition for the dosimetry of yttrium 90 therapy. *European Association of Nuclear Medicine*

(EANM) Annual Meeting, *European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP094.

Pettinato C, Mosconi C, Nanni C *et al.* ^{99m}Tc -MAA SPECT vs ^{90}Y PET/CT images: comparison of distribution and dosimetry in SIRT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP359.

Mahn WA, Wientjes R, Becht AA, de Jong HWAM. Impact of respiratory motion and acquisition settings on SPECT liver dosimetry. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP093.

Knesaurek K, Eldib M, Bini J, *et al.* PET/MRI and PET/CT imaging in liver selective internal radiation therapy with Y-90 microspheres. Which approach is better? *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP430

Kappadath S, Mikell J, Baladandayuthapani V *et al.* Hepatocellular carcinoma tumor response using voxel-based dosimetry following ^{90}Y -microsphere therapy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP361.

Kabnurkar R, Zade A, Kulkarni S *et al.* Role of FDG PET-CT in prognostication of hepatocellular carcinoma patients undergoing transarterial radioembolisation. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP428.

Iaccarino G, D'Andrea M, Cazzato M *et al.* A method to correct breathing effects in the dosimetry of liver radioembolization with ^{90}Y microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP091.

Huizing DMV, Blokland JAK, Younis I. Predictive value of ^{99m}Tc -MAA SPECT-CT scans for the distribution of SIR-Spheres in the liver. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP356.

Haug A, Goritschan A, Papprottka A, *et al.* Comprehensive evaluation of tumoral MAA-uptake using SPECT and SPECT/CT prior to radioembolization in 502 patients. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2014; **55** (Suppl 1): Abs. 1440.

Dieudonné A, Sanchez M, Lebtahi R *et al.* Commissioning of Tc 99m -MAA-SPECT/CT dosimetry for radio-embolization with ^{90}Y -microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW054.

D'Arienzo M, Cozzella L, Spezi E *et al.* ^{90}Y -PET imaging after liver radioembolization: From PET calibration to absorbed dose determination using a monte carlo approach. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW046.

Craig AJ, Murray I, Denis-Bacelar AM *et al.* A comparison between the distributions of ^{99m}Tc -MAA and ^{90}Y -microsphere SPECT scans. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW056.

Bagni O, E. Spezi E, Patterson N *et al.* A workflow for treatment evaluation of ^{90}Y microspheres SIRT therapy of hepatic lesions based on FDG-PET and ^{90}Y -PET. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP432.

Ausland Refsum L, Skretting A, Stokke C. Limitations of ^{90}Y PET after microsphere therapy of the liver - a simulation study. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW045

Anderl J, Beyer T, Haug A *et al.* Advancing patient-specific dosimetry in ^{90}Y radioembolisation (SIRT): Added benefit of monte carlo simulation of ^{90}Y PET. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. PW053.

- Gnesin S, Canetti L, Fresard S *et al.* ^{99m}Tc -MAA SPECT/CT predictive dosimetry vs. ^{90}Y TOF PET/CT post-treatment dosimetry in radioembolization of hepatocellular carcinoma: A quantitative agreement comparison. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2014; **41** (Suppl 2): Abs. OP362.
- Coyne J, Wilson I, Sundram F, Stedman B. Sirtex radioembolization: Correlation between pretreatment macroaggregated albumin scan and posttreatment bremsstrahlung scan. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811–816 Abs.
- Patel RP, Harris A, Thakor AS *et al.* Optimization of arterial-phase computed tomography for the identification of target mesenteric vessels in patients undergoing radioembolization. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e8–9 Abs.
- Cianni R, Pelle G, Saltarelli A *et al.* The role of C-arm computed tomography in the treatment of patients with hepatic metastatic disease treated with yttrium-90 radioembolization. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e9 Abs.
- Aloj L, Arrichiello C, D'Ambrosio L *et al.* Yttrium 90 PET assessment of delivered SIR-Spheres concentrations in patients undergoing single liver lobe radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40** (Suppl 2): S249 Abs. OP697.
- Eugene T, Carlier T, Faivre-Chauvet A *et al.* Absorbed dose distributions from ^{99m}Tc -MAA-SPECT and ^{90}Y -PET in selective intravascular radionuclide therapy (SIRT): A phantom and patient study. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2013; **40** (Suppl 2): S174–S175 Abs. OP353.
- Camacho JC, Kokabi N, Schuster DM *et al.* PERCIST criteria to predict survival at 3 months following intra-arterial resin-based yttrium-90 (Y-90) radioembolization therapy of unresectable intrahepatic cholangiocarcinoma refractory to standard chemotherapy: A proof of concept study. *ASCO Annual Meeting 2013, Journal of Clinical Oncology* **31** (suppl): Abs. e15141.
- Lam MG, Goris ML, Iagaru A *et al.* Fusion MAA-sulfur colloid spect imaging for yttrium-90 radioembolization: towards customized physiology-based dose planning. *Society of Interventional Radiology (SIR) 38th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2013; **24** (Suppl): S34 Abs. 60.
- Sánchez-Martínez M, Collantes M, Rodríguez-Fraile M *et al.* Fluorine-18 radiolabelling of SIR-Spheres® as biodistribution surrogate marker of radiospheres treatment: IN VIVO micro-PET and IN VITRO stability studies. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP080.
- Sabet A, Ezziddin S, Muckle M *et al.* ^{18}F -FDG-PET/CT in planning of selective internal radiation therapy of colorectal liver metastases. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP173.
- Filippi L, D'Arienzo M, Salvatori R *et al.* Planning sequential bilobar treatment with Y90 microspheres: usefulness of parametric imaging with ^{18}F FDG PET/CT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP175.
- Rangarajan V, Zade A, Jha A *et al.* Comparative analysis of ^{90}Y Bremsstrahlung SPECT/CT and ^{90}Y PET/CT imaging of ^{90}Y microsphere therapy. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0031.
- Demir M, Tanyıldız H, Çavdar I *et al.* Optimization of physical parameters and quantification of clinical data in SPECT and PET/CT imaging with Y-90. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0034.
- Hooker C.A, Ruiz D, Kalogianni E *et al.* Y-90 Bremsstrahlung post therapy imaging for patients treated with Y-90 microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0036.
- Lin K, Lee R, Liu C *et al.* The value of whole-body FDG-PET/CT in detection of extrahepatic metastases in hepatocellular carcinoma patients treated with Yttrium-90 radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0508.

- Uslu L, Gulsen F, Sager S *et al.* Radioembolization with Yttrium-90 microspheres in unresectable primary and metastatic liver tumors. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0510.
- Bagni O, Filippi L, Salvatori R *et al.* Voxel dosimetry with ⁹⁰Y-PET for the assessment of liver toxicity. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0131.
- Rangarajan V, Zade A, Kulkarni M *et al.* ⁹⁰Y microsphere therapy: Comparative analysis of pre therapeutic ^{99m}Tc MAA scintigraphy and post therapeutic ⁹⁰Y PET/CT imaging. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0133.
- De Cicco C, Cremonesi M, Colandrea M *et al.* Response assessment after radioembolization with ⁹⁰Y-microspheres for liver metastases: Comparing outcomes with FDG-PET Imaging. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. P0132.
- Sciuto R, Annovazzi A, Rea S *et al.* ¹⁸F-FDG PET/CT role in predicting clinical outcome after ⁹⁰Y-labeled resin microspheres treatment (⁹⁰Y-RE) in advanced hepatocellular carcinoma (HCC). *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP471.
- D'Arienzo M, Chiacchiararelli L, Filippi L *et al.* Dosimetry with ⁹⁰Y PET after liver radioembolization: The role of bed and EUD for the assessment of non uniform activity distributions in lesions. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. O0475.
- Pettinato C, Monari F, Civollani S *et al.* Retrospective dosimetry in patients affected by HCC and treated with SIRT using ⁹⁰Y-microspheres PET/CT imaging. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP476.
- Bailey DL, Willowson KP, Forwood NJ *et al.* Quantitative PET imaging of Y-90. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. OP505.
- Ulrich G, Raatz Y, Furth C *et al.* Prognostic value of Tc-99m-MAA-Uptake in patients with cholangiocellular carcinoma undergoing Y-90-radioembolization. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. PO189.
- Dieudonné A, Gardin I, Siebert A *et al.* A ⁹⁰Y-PET/CT for treatment validation of Y90-microspheres SIRT: A 3D dosimetry comparison with pre-therapeutic Tc99m-MAA-SPECT/CT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. PO190.
- Ma V, Law M, Ng S *et al.* Experience in Y-90 PET imaging and subsequent dose calculation for selective internal radiation therapy to liver cancer. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2012; **39** (Suppl 2): Abs. PO196.
- Paxton A, Nickles R, DeWerd L. Activity assay of a Y-90 microsphere sample using a coincidence detection system. *American Association of Physicists in Medicine Annual Meeting, Medical Physics* 2012; **6**: 3856 Abs. SU-F-BRB-2.
- Clinthorne N, Kison P, Rothley J, Dewaraja Y. Comparison of Bremsstrahlung SPECT/CT and PET/CT for Y90 quantification. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2012; **53** (Suppl 1): Abs. 445.
- Arrichiello C, Aloj L D'Ambrosio L *et al.* PET based dosimetry in patients undergoing ⁹⁰Y-SIR-Spheres treatment for liver metastases: Correlation with response. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2012; **53** (Suppl 1): Abs. 571.
- Shrikanthan S, Kunam V, Srinivas S. Y-90 PET/CT for localization of Yttrium-90 microspheres - Post radioembolization. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2012; **53** (Suppl 1): Abs. 1202.

MacLellan C, Hobbs B, Chasen B *et al.* Absorbed dose differences in ⁹⁰Y microsphere therapy between pre-treatment ^{99m}Tc-MAA and post-treatment ⁹⁰Y scans. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2012; **53** (Suppl 1): Abs. 1494.

Erwin W, Cooney S, Santiago G *et al.* A measured Bremsstrahlung dose rate constant for Yttrium-90 microsphere liver-directed brachytherapy. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2012; **53** (Suppl 1): Abs. 2230.

Irani FG, Kao Y, Tay K *et al.* Personalized predictive dosimetry by artery-specific SPECT/CT partition modeling: how effective is it? *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S68 Abs. 163.

Savin MA, Vartanian SA, Metz T *et al.* Early imaging accuracy post Y90 radioembolization for liver metastases from colorectal cancer. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S70–S71 Abs. 169.

Chang T, Owen R, McKinney JM *et al.* Treatment modification of Y90 selective internal radionuclide therapy based on quantitative PET/CT imaging. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S80 Abs. 194.

Rosenbaum CE, Smits M, Seinstra BA *et al.* Diffusion-weighted magnetic resonance imaging for early tumor response assessment after Yttrium-90 radioembolization in patients with colorectal cancer liver metastases. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S84 Abs. 204.

Kucuk ON, Soydal C, Lacin S *et al.* Intra-arterial radioembolization with Y-90 for unresectable primary and metastatic liver tumors and evaluation of treatment response by FDG PET/CT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. P470.

Bagni O, D'Arienzo M, Salvatori R *et al.* Can ⁹⁰Y-PET predict the outcome of lesions after SIRT? Biodistribution assessment and preliminary data of Voxel Based Dosimetry. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. OP023.

Di Dia A, Cremonesi M, Botta B *et al.* Impact of 3D dosimetric and radiobiological estimates methods in radioembolisation of liver metastasis with ⁹⁰Y-microspheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. OP020.

Walrand S, Lhommel R, Goffette P *et al.* Tumor dose-response relationship based on ⁹⁰Y and FDG TOF-PET imaging in liver-SIRT. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. OP024.

Volkan-Salanci B, Bozkurt MF, Cil B *et al.* Can perfusion pattern in pre-therapy hepatic artery perfusion scintigraphy predict radiomicrosphere therapy response? *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. OP131.

Arrichiello C, Aloj L, D'Ambrosio L *et al.* Lesion and normal liver absorbed doses based on PET measurements in patients undergoing treatment for liver metastases with ⁹⁰Y SIR spheres. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. OP134.

Ulrich G, Zeile M, Großer OS *et al.* Does the intratumoral uptake pattern of Tc-99m-MAA allow a prediction of response to yttrium-90-radioembolization in patients with colorectal liver metastases? *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. P743.

Chalaye J, Bernardini M, Smadja C *et al.* Combining ^{99m}Tc-MAA SPECT/CT and ¹⁸F-FDG PET/CT for planning liver ⁹⁰Y radioembolization (SIRT). *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2011; **38** (Suppl 2): Abs. P744.

Rosenbaum C, Lam M, van den Bosch M *et al.* Pre-treatment intra-hepatic distribution of technetium-99m MAA does not correlate with the post-treatment distribution of yttrium-90 in radioembolization patients. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2011; Abs. 2107.1.

Wilhelmsen S, Ulrich G, Löwenthal D *et al.* Effectiveness of repeat assessment in patients scheduled for radioembolization using yttrium-90 microspheres with extrahepatic ^{99m}Tc-MAA accumulation to the

- gastrointestinal tract: a single center experience. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2011; Abs. 2107.4.
- Burgmans MC, Irani FG, Soh LJM *et al.* Super-selective Y-90 infusion guided by intra-arterial CT enables safe selective internal radiation therapy with a low coiling rate. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2011; Abs. P-294.
- Burgmans MC, Irani FG, Soh LJM *et al.* The use of intra-arterial CT in addition to angiography and TC99-MAA to guide infusion of yttrium-90 for selective internal radiation therapy. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2011; Abs. 2107.5.
- Too CW, Irani FG, Tay KH *et al.* Comparison of diagnostic quality of intra-arterial CT images obtained using cone beam CT and multidetector CT systems for hepatic radioembolisation. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2011; Abs. P-352.
- Jiang M, F. Nowakowski S, Aaron Fischman A *et al.* Segmental perfusion differences (SPD) on paired Tc-99m MAA hepatic perfusion imaging (HPI) and Yttrium-90 microsphere (Y-90) imaging: Associations with angiography. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 88.
- Cremonesi M, Di Dia GA, Bonomo G *et al.* Comparing outcomes from CT and PET imaging after tumor liver radioembolization with ⁹⁰Y-microspheres might suggest more appropriate choice of response evaluation. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 89.
- Nichols K, Leveque F, Pugliese P *et al.* Accuracy of pulmonary shunt measurements prior to ⁹⁰Y selective internal radiotherapy: A phantom study. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 90.
- Ahmadzadehfar H, Sabet A, Reichmann K *et al.* Imaging of Y90 distribution with PET/CT and bremsstrahlung SPECT/CT after radioembolization: A patient based study. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 92.
- Di Dia GA, Botta F, Marta Cremonesi M *et al.* Voxel-dosimetry as useful tool for optimized administered activity in radioembolization of liver tumors with ⁹⁰Y-microspheres. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 131.
- Lodge M, Rong X, Frey E, Geschwind JF, Wahl R. Quantitative potential of Y-90 PET. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 601.
- Civelek A. SIRS-spheres (Y-90 microspheres) therapy for unresectable metastatic liver disease: Pitfalls from tracer preparation for injection to image interpretation. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 1082.
- Kao YH, Tan AEH, Ng DCE, Goh ASW. Controversy in Yttrium-90 selective internal radiation therapy: Imaging discordance between catheter-directed CT hepatic angiography versus Tc-99m-MAA SPECT/CT as a possible first human demonstration of in-vivo microparticle trajectory selection for specific daughter vessel targeting. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 1083.
- Haug A, Zech C, Bartenstein P, Hacker M. FDG PET/CT in the prediction of survival in patients after radioembolization of hepatic metastases from breast cancer. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 368.
- Kao YH, Tan AEH, Ng DCE, Goh ASW. State-of-the-art Yttrium-90 selective internal radiation therapy: Technical aspects of artery-specific SPECT/CT partition model dosimetry. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs.1084.
- Ahmadzadehfar H, Muckle M, Sabet A *et al.* The effectiveness of Bremsstrahlung SPECT-CT of the abdomen after radioembolization in the prediction of radiation induced gastroduodenal side effects. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 1361.
- Dieudonné A, Garin E, Sophie Laffont S *et al.* Fast 3D dosimetry of Y90 selective internal radiation treatment (SIRT) using voxel S-values. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 1681.
- Giesel F, Wulfert S, Zechmann C *et al.* Short-term follow-up using contrast-enhanced ultrasound in patients with hepatic metastases under selective internal radiation therapy (SIRT). *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 1726.

- Gupta A, DiFilippo F, Shrikanthan S *et al.* PET/CT imaging for localization of Yttrium-90 microspheres post radioembolization - Initial experience. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 1728.
- Baechler S, Camus F, Hobbs R *et al.* Quantitative imaging of ⁹⁰Y with PET/CT for reliable 3D patient-specific dosimetry after selective internal radiation therapy (SIRT). *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 1798.
- Wang X, Shah RP, Brown KT *et al.* Cystic artery localization using a three-dimensional angiography vessel tracking system compared with conventional two-dimensional angiography. *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2011; **22** (Suppl): S49–50 Abs. 111.
- Sardari A, Sweeney J, Biebel B *et al.* Radiation related computed tomographic benign findings after radioembolization with Yttrium-90. *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2011; **22** (Suppl): S90 Abs. 209.
- Schmidt G, Paprottka P, Jakobs T *et al.* FDG-PET-CT and whole-body MRI for triage in patients planned for radioembolization therapy. *European Congress of Radiology* 2011; Abs. C-0624.
- Seidel R, Fries P, Farmakis G *et al.* MR evaluation of hepatic lesions after radioembolization by unenhanced and hepatobiliary phase MR imaging using Gd-BOPTA. *European Congress of Radiology* 2011; Abs. C-1187.
- Vouche M, Lemort M, Flamen P *et al.* Correlation study of structural and metabolic response of hepatic metastasis from colorectal cancer after a ⁹⁰Y radio-embolization treatment. *European Congress of Radiology* 2011; Abs. C-1382.
- Irani FG, Tan BS, Yoong G *et al.* Comparison of diagnostic quality of intra-arterial CT images obtained using cone-beam CT and multi-detector CT systems for hepatic radioembolization. *European Congress of Radiology* 2011; Abs. C-1862.
- Patel A, Tay KH, Lo RHG *et al.* Usefulness of catheter directed intra-arterial CT hepatic angiography (CDCTHA) using an hybrid angiography - computed tomography system in radio-embolization of hepatocellular carcinoma. *European Congress of Radiology* 2011; Abs. C-1968.
- Wulfert S, Zechmann C, Kratochwil C *et al.* Short-term follow-up using contrast-enhanced ultrasound in patients with hepatic metastases under selective internal radiation therapy (SIRT). *European Congress of Radiology* 2011; Abs. C-1985.
- Rothe JH, Grieser C, Schnapauff D *et al.* MR-volumetry of functional liver tissue before selective intraarterial radiotherapy (SIRT): evaluation of a threshold based approach using hepatobiliary contrast media (Gd-EOB) and fat saturated T1w 3D-sequences with different flip angles. *European Congress of Radiology* 2011; Abs. C-1991.
- Yu N, Srinivas SM, DiFilippo FA *et al.* Gamma planar scintigraphy based calculation overestimates lung shunt for Y-90 radioembolization of liver tumor. *53rd Annual Meeting of American Society for Radiation Oncology (ASTRO), International Journal of Radiation Oncology, Biology and Physics* 2010; **78** (2 Suppl): S322 Abs. 2265.
- Dominguez I, Iñarrairaegui M, Rodriguez M *et al.* Tumor vascularity and response to radioembolization using Y90 resin microspheres. *4th International Liver Cancer Association (ILCA) meeting* September 2010; Abs. P-133.
- Baechler S, Camus F, Haag G *et al.* SPECT and PET imaging of yttrium-90 in targeted radionuclide therapy. *Schweizerische Gesellschaft für Strahlenbiologie und Medizinische Physik (SGSMP – Swiss Society of Radiobiology and Medical Physics) Annual Conference* 2010; Abs. 32.
- Riaz A, Lewandowski RJ, Gupta R *et al.* Imaging response in the primary index lesion: A standardizable, reproducible and novel biomarker for hepatocellular carcinoma. *Society of Interventional Radiology (SIR) 35th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2010; **21** (Suppl): S11 Abs. 23.
- Riaz A, Ryu RK, Gupta R *et al.* A novel scoring system combining anatomic size and enhancement characteristics for assessing response to locoregional therapies. *Society of Interventional Radiology (SIR) 35th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2010; **21** (Suppl): S11–12 Abs. 24.
- Louie JD, Kothary N, Kuo WT *et al.* Impact of using C-arm CT on treatment planning for yttrium-90 radioembolization. *Society of Interventional Radiology (SIR) 35th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2010; **21** (Suppl): S14 Abs. 31.

Ulrich G, Ruf J, Großer O *et al.* Pretherapeutic evaluation of extra-hepatic accumulation in SIRT-patients by Tc-99m-MAA-perfusion-scintigraphy: Is there an impact of SPECT-MRI/CT-image fusion? *European Association of Nuclear Medicine (EANM) Conference 2009*; Abs. OP437.

Aloj L, Arrichiello C, Izzo F *et al.* Tumor dosimetry in the treatment of liver metastases with Sirtex does not correlate with therapeutic response. *European Association of Nuclear Medicine (EANM) Conference 2009*; Abs. OP510.

Dasgupta DJ, Kalogianni E, Corcoran BJ *et al.* The value of additional SPECT in ^{99m}Tc-MAA perfusion imaging pre therapy, and ⁹⁰Y Bremsstrahlung imaging post therapy, in the management of patients treated with ⁹⁰Y microspheres. *European Association of Nuclear Medicine (EANM) Conference 2009*; Abs. OP622.

Garrastachu P, Rodriguez-Fraile M, Herraiz M *et al.* Liver radioembolization. The tumoral uptake of ^{99m}Tc albumin macroaggregates in SPECT/CT after the angiographic redistribution. *European Association of Nuclear Medicine (EANM) Conference 2009*; Abs. OP623.

Sze DY, Louie JD, Iagaru AH, Goris ML *et al.* Survival after ⁹⁰Y radioembolization is predicted by dose distribution scintigraphy. *European Association of Nuclear Medicine (EANM) Conference 2009*; Abs. OP625.

Bozkurt MF, Peynircioglu B, Cil B *et al.* Impact of image co-registration on the treatment planning of Y-90 microsphere therapy. *European Association of Nuclear Medicine (EANM) Conference 2009*; Abs. PW048.

Mustafa M, Hoffmann R, Haug A *et al.* The value of SPECT/CT in diagnosing aberrant abdominal vessels in pre – SIRT evaluation with ^{99m}Tc-MAA. *European Association of Nuclear Medicine (EANM) Conference 2009*; Abs. P274.

Herraiz MJ, Garrastachu P, Iñarrairaegui M *et al.* Yttrium-90 liver radioembolization (Y90-RE): ^{99m}Tc-MAA SPECT/CT tumoral uptake after angiographic redistribution of intrahepatic vessels. *Cardiovascular and Interventional Radiology in Europe (CIRSE) 2009*; Abs. P-134.

Rodriguez-Fraile M, Arbizu J, Iñarrairaegui M *et al.* Evaluation of ⁹⁹Tc-MAA SPECT as a biomarker of liver tumor response to radioembolization with 90-yttrium. *European Association of Nuclear Medicine (EANM) Conference 2008*; Abs. P206.

Cremonesi M, Ferrari M, Bartolomei M *et al.* Radioembolisation with ⁹⁰Y-microspheres: any possible correlation among response, imaging, and dosimetry? *European Association of Nuclear Medicine (EANM) Conference 2008*; Abs. P591.

Ahmadzadehfar H, Biermann K, Sabet A *et al.* Significance of Bremsstrahlung scans in patients treated by selective internal radiation therapy (SIRT). *European Association of Nuclear Medicine (EANM) Conference 2008*; Abs. PW104.

Campbell J, Wong O, Muzik O *et al.* Dose response to Y-90 microsphere treatment of metastatic liver cancer by quantitative analysis SPECT and PET images. *Journal of Nuclear Medicine* 2008; **49** (Suppl 1): 43P Abs. 170.

Campbell J, Mahajan P, Savin M, Wong O. Benefits of SPECT and SPECT-CT liver perfusion imaging in treatment planning for Y-90 radioembolization. *Journal of Nuclear Medicine* 2008; **49** (Suppl 1): 345P. Abs. 1460.

Machac, J, Heiba, S, Zhang Z *et al.* Prediction of yttrium 90 SIR-Spheres deposition by Tc 99m MAA SPECT/CT liver perfusion imaging and their relationship to angiographic flow. Radiomicrosphere Therapy: 4th Annual Symposium May 2008 *Journal of Interventional Oncology* 2009; **2**: 93.

Machac, J, Heiba, S, Zhang Z *et al.* The value of planar and SPECT/CT Tc 99m MAA liver perfusion imaging in the planning of yttrium 90 SIR-Spheres therapy of tumors of the liver. Radiomicrosphere Therapy: 4th Annual Symposium May 2008 *Journal of Interventional Oncology* 2009; **2**: 94.

Campbell J, Wong CO, Muzik O *et al.* Analysis of SPECT and PET images for the development of dose response curves in ⁹⁰Y microsphere radiotherapy. Radiomicrosphere Therapy: 4th Annual Symposium May 2008 *Journal of Interventional Oncology* 2009; **2**: 94.

Campbell J, Mahajan P, Savin P, Wong CO. SPECT-CT liver perfusion imaging in treatment planning for ⁹⁰Y microsphere radiotherapy. Radiomicrosphere Therapy: 4th Annual Symposium May 2008 *Journal of Interventional Oncology* 2009; **2**: 94.

Gulec S, Mesoloras G, Dezarn W *et al.* Biologic determinants of absorbed dose estimates in Y-90 microsphere treatment of hepatic malignancies: Significance of tumor perfusion measured by Tc-99m MAA imaging. *Journal of Nuclear Medicine* 2007; **48** (Suppl 2): 396P Abs. 1676.

Machac J, Weintraub J, Nowakowski F *et al.* Variations in liver perfusion patterns in patients with liver tumors undergoing therapy with yttrium-90 microspheres, studied with SPECT/CT. *Journal of Nuclear Medicine* 2007; **48** (Suppl 2): 396P Abs. 1677.

Machac J, Weintraub J, Nowakowski F *et al.* Does perfusion imaging of the liver with Tc-99m MAA reliably predict the pattern of therapeutic deposition of Yttrium-90 SIR-Spheres? *Journal of Nuclear Medicine* 2007; **48** (Suppl 2): 399P. Abs. 1686.1

Lazar B, Gates V, McDonald N *et al.* Hepatic volume analysis using SPECT and CT as a clinical tool for microsphere treatment planning. *Journal of Nuclear Medicine* 2007; **48** (Suppl 2): 473P Abs. 2214.

Renshaw J, Gates V, Spies S *et al.* Effect of elapsed time between Tc-99m MAA preparation and patient imaging on evaluation of lung shunting. *Journal of Nuclear Medicine* 2007; **48** (Suppl 2): 476P Abs. 2225.

Burdette AS, Carlisle JG, Morton KA. Fusion of Tc-99m MAA SPECT images to CT or MR images in yttrium-90 microsphere radioembolization treatment planning. *Society of Interventional Radiology (SIR) conference* 2007; Abs. 402.

Denecke T, Lopez Hänninen E, Rühl R *et al.* Planning transarterial radioembolisation of colorectal liver metastases with Y90-microspheres: diagnostic imaging approach. *European Association of Nuclear Medicine (EANM) Conference* 2006; Abs. 180.

Rose SC, Iussich G, Casola G. Comparison of computed tomography-angiography and digital subtraction-angiography for displaying vascular anatomy relevant to regional therapy for liver cancers. *Cardiovascular and Interventional Radiology* 2006. Abs. P68.

Sebastian AJ, Szyszko T, Al-Nahhas A, Tait NP. Value of hepatic angiography and Bremsstrahlung imaging in selective internal radiation therapy. *Cardiovascular and Interventional Radiology* 2006. Abs. P88.

Gulec S, Mesoloras G, Dezarn A *et al.* Safety and efficacy evaluation of Y-90 microsphere treatment of liver malignancies using medical internal radiation dosimetry (MIRD). *Journal of Nuclear Medicine* 2006; **47** (Suppl 1): 493P Abs. 1812.

Managing Side Effects and Complications

Papers on Managing Side Effects and Complications

Voruganti IS, Godwin JL, Adrain A *et al.* A Woman with Black Beads in Her Stomach: Severe Gastric Ulceration Caused by Yttrium-90 Radioembolization. *Case Rep Med* 2018 Apr 15. ePub doi: 10.1155/2018/14137

Devulapalli KK, Fidelman N, Soulen MC *et al.* ⁹⁰Y Radioembolization for Hepatic Malignancy in Patients with Previous Biliary Intervention: Multicenter Analysis of Hepatobiliary Infections. *Radiology* 2018 May 8: 170962. ePub doi: 10.1148/radiol.2018170962.

Ingrisch M, Schöppe F, Paprottka K *et al.* Prediction of ⁹⁰Y radioembolization outcome from pretherapeutic factors with random survival forests. *J Nucl Med* 2018; **59** (5): 769–773.

Reimer P, Virarkar MK, Binnenhei M *et al.* Prognostic factors in overall survival of patients with unresectable intrahepatic cholangiocarcinoma treated by means of yttrium-90 radioembolization: results in therapy-naïve patients. *Cardiovasc Intervent Radiol* 2018; **41** (5): 744–752.

Overman MJ, Lonardi S, Wong KYM *et al.* Durable clinical benefit with nivolumab plus ipilimumab in DNA mismatch repair-deficient/microsatellite instability-high metastatic colorectal cancer. *J Clin Oncol* 2018; **36** (8): 773–779.

Justinger C, Gruden G, Kouladouros K *et al.* Histopathological changes resulting from selective internal radiotherapy (SIRT). *J Surg Oncol* 2018 Feb 15. ePub doi: 10.1002/jso.24967.

Kennedy A, Brown DB, Feilchenfeldt J *et al.* Safety of selective internal radiation therapy (SIRT) with yttrium-90 microspheres combined with systemic anticancer agents: expert consensus. *J Gastrointest Oncol* 2017; **8** (6): 1079–1099.

Nia BB, Nia ES, Avery RJ *et al.* Punctate radiation dermatitis of the foot and ankle caused by distal embolization of ⁹⁰y microspheres during liver directed therapy. *Clin Nucl Med* 2017; **42** (9): e422-e423.

Ones T, Eryuksel E, Baltacioglu F *et al.* The effect of selective internal radiation therapy with yttrium-90 resin microspheres on lung carbon monoxide diffusion capacity. *EJNMMI Research* 2017; ePub doi: 10.1186/s13550-017-0353-5.

Pardo F, Sangro B, Lee RC *et al.* The Post-SIR-Spheres Surgery Study (P4S): Retrospective Analysis of Safety Following Hepatic Resection or Transplantation in Patients Previously Treated with Selective Internal Radiation Therapy with Yttrium-90 Resin Microspheres. *Annals of Surgical Oncology*. 2017; **24**(9): 2465-2473.

Sangro B, Martínez-Urbistondo D, Bester L *et al.* Prevention and treatment of complications of selective internal radiation therapy: Expert guidance and systematic review. *Hepatology* 2017; **66** (3): 969–982.

Castro HM, Wainstein EJ, Maritano Furcada J. Radiation pneumonitis following hepatic yttrium-90 radioembolization. *Archivos de Bronconeumologia* 2016 Nov 24; ePub doi: 10.1016/j.arbres.2016.08.002.

Ahmed O, Patel MV, Masrani A *et al.* Assessing intra-arterial complications of planning and treatment angiograms for Y-90 radioembolization. *Cardiovascular and Interventional Radiology* 2017 Jan 11; ePub doi: 10.1007/s00270-016-1555-3.

Geisel D, Powerski M, Schnapauff D *et al.* No infectious hepatic complications following radioembolization with ⁹⁰Y microspheres in patients with biliodigestive anastomosis. *Anticancer Research* 2014; **34**: 4315–4322.

Caglar E, Doğusoy G, Kabasakal L, Dobrucali A. Long-term palliative effect of stenting in gastric outlet obstruction due to transarterial chemoembolization with yttrium-90 in a patient with metastatic neuroendocrine tumor. *Clinical Endoscopy* 2016 Jun 29; ePub doi: 10.5946/ce.2015.149.

Loree JM, Hiruki T, Kennecke HF. Case report of cirrhosis following yttrium-90 radioembolization for pancreatic neuroendocrine liver metastases. *Case Reports in Oncology* 2016; **9**: 76–82.

D'Emic N, Engelman A, Molitoris J *et al.* Prognostic significance of neutrophil-lymphocyte ratio and platelet-lymphocyte ratio in patients treated with selective internal radiation therapy. *Journal of Gastrointestinal Oncology* 2016; **7**: 269–277.

Sun B, Lapetino SR, Duffalha SAL *et al.* Microvascular injury in persistent gastric ulcers after yttrium-90 microsphere radioembolization for liver malignancies. *Human Pathology* 2016; **50**:11–14.

Samin M, Braat MN, Lam MG. Radioembolization following liver resection:a call for dosimetry.

- Journal of Vascular and Interventional Radiology* 2016; **27**:612–613. [Comment on: Kessler J *et al. Journal of Vascular and Interventional Radiology* 2016; **27**:46–51.]
- Kao YH, Lichtenstein M. Origin, dosimetric effect and clinical limitations of the semi-empirical body surface area method for radioembolization using yttrium-90 resin microspheres. *Journal of Medical Imaging and Radiation Oncology* 2016 Mar 28; ePub doi: 10.1111/1754-9485.12449.
- Pieper CC, Willinek WA, Thomas D *et al.* Incidence and risk factors of early arterial blood flow stasis during first radioembolization of primary and secondary liver malignancy using resin microspheres: an initial single-center analysis. *European Radiology* 2016; **26**: 2779–2789.
- Erxleben C, Scheurig-Münkler C, Geisel D *et al.* Hepatopulmonary shunting after surgical, interventional and systemic therapy in patients with liver malignancies scheduled for radioembolization. *Acta Radiologica* 2016; **57**: 908–913.
- Kessler J, Lewis A, Gagandeep S *et al.* Radioembolization following liver resection: Safety and dosing considerations. *Journal of Vascular and Interventional Radiology* 2016; **27**: 46–51.
- Parakh S, Gananadha S, Allen R, Yip D. Cholecystitis after yttrium-90 resin microsphere radioembolization treatment: Clinical and pathologic findings. *Asian Journal of Surgery* 2016; **39**: 144–148.
- Gabrielson A, Miller A, Banovac F *et al.* Outcomes and predictors of toxicity after selective internal radiation therapy using Yttrium-90 resin microspheres for unresectable hepatocellular carcinoma. *Frontiers in Oncology* 2015; **5**: 292.
- Ward TJ, Tamrazi A, Lam M *et al.* Management of high hepatopulmonary shunting in patients undergoing hepatic radioembolization. *Journal of Vascular and Interventional Radiology* 2015; **26**: 1751–1760.
- Powerski M, Busse A, Seidensticker M *et al.* Prophylactic embolization of the cystic artery prior to radioembolization of liver malignancies-an evaluation of necessity. *Cardiovascular and Interventional Radiology* 2015; **38**: 678–684.
- Bohle W, Zoller WG. Ultrasound in radioembolization induced liver disease (REILD). *Zeitschrift für Gastroenterologie* 2015; **53**: 798–801.
- Paprottka PM, Paprottka KJ, Walter A *et al.* Safety of radioembolization with ⁹⁰Yttrium resin microspheres depending on coiling or no-coiling of aberrant/high-risk vessels. *Cardiovascular and Interventional Radiology* 2015; **38**: 946–956.
- Shukla PA, Ahuja J, Kurli V *et al.* Gastric perforation following prophylactic embolization of right gastric and gastroduodenal arteries prior to selective internal radiation therapy. *Cardiovascular and Interventional Radiology* 2015; **38**: 1645–1648.
- Baumann J, Lin M, Patel C. An unusual case of gastritis and duodenitis following yttrium 90-microsphere selective internal radiation. *Clinical Gastroenterology and Hepatology* 2015; **13**: xxiii – xxiv.
- Flaherty AM. Management of malignancy-related ascites. *Oncology Nursing Forum* 2015; **42**: 96–99.
- Henry LR, Hostetter RB, Ressler B *et al.* Liver resection for metastatic disease after ⁹⁰Y radioembolization: A case series with long-term follow-up. *Annals of Surgical Oncology* 2015; **22**: 467–474.
- Seidensticker M, Burak M, Kalinski T *et al.* Radiation-Induced Liver Damage: Correlation of Histopathology with Hepatobiliary Magnetic Resonance Imaging, a Feasibility Study. *Cardiovascular and Interventional Radiology* 2015; **38**: 213–221.
- Bas A, Samanci C, Gulsen F *et al.* Evaluation of liver stiffness after radioembolization by real-time ShearWave™ elastography: Preliminary study. *Cardiovascular and Interventional Radiology* 2015; **38**: 957–963.
- Cholapranee A, van Houten D, Deitrick G *et al.* Risk of liver abscess formation in patients with prior biliary intervention following yttrium-90 radioembolization. *Cardiovascular and Interventional Radiology* 2015; **38**: 397–400.
- Fernandez-Ros NF, Iñarrairaegui M, Paramo JA *et al.* Radioembolization of hepatocellular carcinoma activates liver regeneration, induces inflammation and endothelial stress and activates coagulation. *Liver International* 2015; **35**: 1590–1596.
- Ricke J, Bulla K, Kolligs F *et al.* Safety and toxicity of radioembolization plus sorafenib in advanced hepatocellular carcinoma (HCC): Analysis of the European multicenter trial SORAMIC. *Liver International* 2015; **35**: 620–626.

- Dobrocky T, Fuerstner M, Klaeser B *et al.* Regional radiation pneumonitis after SIRT of a subcapsular liver metastasis: What is the effect of direct beta irradiation? *Cardiovascular and Interventional Radiology* 2015; **38**: 1025–1030.
- Dhingra S, Schwartz M, Kim E *et al.* Histological changes in nontumoral liver secondary to radioembolization of hepatocellular carcinoma with yttrium 90-impregnated microspheres: Report of two cases. *Seminars in Liver Disease* 2014; **34**: 465–468.
- Sotirchos VS, Petre EN, Brown KT *et al.* Safe and successful yttrium-90 resin microsphere radioembolization in a heavily pretreated patient with chemorefractory colorectal liver metastases after biliary stent placement above the papilla. *Case Reports in Hepatology* 2014; **2014**: 921406.
- Sangro B. Liver function considerations for post-selective internal radiation therapy resection (hepatocellular carcinoma and metastatic colorectal cancer). *Future Oncology* 2014; **10** (Suppl): 57–59.
- Rotellar F, Pardo F, Martínez-Ortega P. The safety of resection post-selective internal radiation therapy. *Future Oncology* 2014; **10** (Suppl): 53–55.
- Bilbao JI. Radioembolization and the cystic artery. *Journal of Vascular and Interventional Radiology* 2014; **25**: 1724–1726.
- Seidensticker M, Seidensticker R, Damm R *et al.* Prospective randomized trial of enoxaparin, pentoxifylline and ursodeoxycholic acid for prevention of radiation-induced liver toxicity. *PLoS ONE* 2014; **9**: e112731
- Yim SY, Kim JD, Jung JY *et al.* Gastrectomy for the treatment of refractory gastric ulceration after radioembolization with (90)Y microspheres. *Clinical and Molecular Hepatology* 2014; **20**: 300–305.
- Korkmaz M, Bozkaya H, Cinar C *et al.* Liver abscess following radioembolization with yttrium-90 microspheres. *Wiener klinische Wochenschrift* 2014; **126**: 785–788.
- Riaz A, Awais R, Salem R. Side effects of yttrium-90 radioembolization. *Frontiers in Oncology* 2014; **29**: 198.
- Bennink RJ, Cieslak KP, van Delden OM *et al.* Monitoring of total and regional liver function after SIRT. *Frontiers in Oncology* 2014; **4**: 152.
- Sag AA, Savin MA, Lal NR, Mehta RR. Yttrium-90 radioembolization of malignant tumors of the liver: gallbladder effects. *American Journal of Roentgenology* 2014; **202**: 1130–1135.
- Sharma AK, Foster TH, Katz A *et al.* Supraumbilical rash caused by nontarget radioembolization to the falciform artery. *Journal of Vascular and Interventional Radiology* 2014; **25**: 483–484.
- Lam MG, Banerjee A, Louie JD *et al.* Splenomegaly-associated thrombocytopenia after hepatic yttrium-90 radioembolization. *Cardiovascular and Interventional Radiology* 2014; **37**: 1009–1017.
- Smits ML, van den Hoven AF, Rosenbaum CE *et al.* Correction: Clinical and laboratory toxicity after intra-arterial radioembolization with ⁹⁰Y-microspheres for unresectable liver metastases. *PLoS One* 2013 Oct 23; ePub doi: 10.1371/annotation/559e04cc-b09c-4b5c-9405-56837f6d5627. [Correction on Smits ML *et al.* *PLoS One* 2013; **8**: e69448.
- D'Alessio D, Giliberti C, Soriani A *et al.* Dose evaluation for skin and organ in hepatocellular carcinoma during angiographic procedure. *Journal of Experimental & Clinical Cancer Research* 2013; **32**: 81.
- Smits ML, van den Hoven AF, Rosenbaum CE *et al.* Clinical and laboratory toxicity after intra-arterial radioembolization with ⁹⁰Y-microspheres for unresectable liver metastases. *PLoS One* 2013; **24**; **8**: e69448.
- Tan AE, Kao YH, Xie W. Excessive hepatic arterial-portal venous shunting may predict failure of microparticle localization in hepatocellular carcinomas. *World Journal of Nuclear Medicine* 2013; **12**: 48–50.
- Peterson JL, Vallow LA, Johnson DW *et al.* Complications after ⁹⁰Y microsphere radioembolization for unresectable hepatic tumors: An evaluation of 112 patients. *Brachytherapy* 2013; **12**: 573–579.
- Kurian RR, Preston SR, Bagwan IN. Iatrogenic gastric ulceration. *Virchows Arch* 2013; **462**: 685–686.
- Kosiek O, Strach K, Pech M *et al.* [Finding-specific minimally invasive approach for acute radiation-induced cholecystitis after ⁹⁰Y-radioembolisation of intrahepatic metastases]. *Zentralblatt für Chirurgie* 2013; **138**: 84–87. [Article in German]

- Lam MG, Abdelmaksoud MH, Chang DT *et al.* Safety of ⁹⁰Y radioembolization in patients who have undergone previous external beam radiation therapy. *International Journal of Radiation Oncology, Biology and Physics* 2013; **87**: 323–329.
- Stiven P, Frizelle FA. The importance of anatomy in a new iatrogenic disease: Yttrium microsphere-induced gastritis. *New Zealand Medical Journal* 2013 Jun 28; **126**: 65–66.
- Rodríguez-Lago I, Carretero C, Herráiz M *et al.* Long-term follow-up study of gastroduodenal lesions after radioembolization of hepatic tumors. *World Journal of Gastroenterology* 2013; **19**: 2935–2940.
- Luo DL, Chan JK. Basophilic round bodies in gastric biopsies little known by pathologists: Iatrogenic yttrium 90 microspheres deriving from selective internal radiation therapy. *International Journal of Surgery and Pathology* 2013; **21**: 535–537.
- Veloso N, Brandão C, Gonçalves B *et al.* Gastroduodenal ulceration following liver radioembolization with yttrium-90. *Endoscopy* 2013; **45**: E108–109.
- Wang DS, Louie JD, Kothary N *et al.* Prophylactic topically applied ice to prevent cutaneous complications of nontarget chemoembolization and radioembolization. *Journal of Vascular and Interventional Radiology* 2013; **24**: 596–600.
- Gil-Alzugaray B, Chopitea A, Iñarrairaegui M *et al.* Prognostic factors and prevention of radioembolization-induced liver disease. *Hepatology* 2013; **57**: 1078–1087.
- Lam MG, Banerjee S, Louie JD *et al.* Root cause analysis of gastroduodenal ulceration after yttrium-90 radioembolization. *Cardiovascular and Interventional Radiology* 2013; **36**: 1536–1547.
- Lam MG, Louie JD, Iagaru AH *et al.* Safety of repeated Yttrium-90 radioembolization. *Cardiovascular and Interventional Radiology* 2013; **36**: 1320–1328.
- Theysohn JM, Müller S, Schlaak JF *et al.* Selective internal radiotherapy (SIRT) of hepatic tumors: how to deal with the cystic artery. *Cardiovascular and Interventional Radiology* 2013; **36**: 1015–1022.
- Kosiek O, Strach K, Pech M *et al.* Situativ und befundadaptiertes, minimalinvasives management einer akuten radiogenen cholezystitis nach ⁹⁰Y-radioembolisation intrahepatischer metastasen. [Finding-specific minimally invasive approach for acute radiation-induced cholecystitis after ⁹⁰Y-radioembolisation of intrahepatic metastases.]. *Zentralblatt fur Chirurgie* 2013; **138**: 84–87. [in German]
- Seidensticker R, Seidensticker M, Damm R *et al.* Hepatic toxicity after radioembolization of the liver using ⁹⁰Y-microspheres: Sequential lobar versus whole liver approach. *Cardiovascular and Interventional Radiology* 2012; **35**: 1109–1118.
- Metyko J, Williford J, Erwin W *et al.* Long-lived impurities of ⁹⁰Y-labeled microspheres, TheraSphere and SIR-Spheres, and the impact on patient dose and waste management. *Health Physics* 2012; **103**: S204–S208.
- Bilbao J. Maximising effects and minimising complications of selective internal radiation therapy. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 51–52.
- Kennedy A. Calculating yttrium-90 activity with clinical considerations. *Proceedings of the 4th European Symposium on Liver-Directed Therapy Using ⁹⁰Y Microspheres*, *European Journal of Cancer Supplements* 2012; **10** (3): 59–61.
- Sabet A, Ahmadzadehfar H, Schäfer N *et al.* Survival after accidental extrahepatic distribution of Y90 microspheres to the mesentery during a radioembolization procedure. *Cardiovascular and Interventional Radiology* 2012; **35**: 954–957.
- Garg M, Strauchen JA, Warner RR, Divino CM. Radioembolization-induced gastroduodenal ulcer. *The American Surgeon* 2012; **78**: 621–623.
- Wright CL, Werner JD, Tran JM *et al.* Radiation pneumonitis following yttrium-90 radioembolization: case report and literature review. *Journal of Vascular and Interventional Radiology* 2012; **23**: 669–674.
- Gupta A, Gill A, Shrikanthan S *et al.* Nontargeted Y-90 microsphere radioembolization to duodenum visualized on Y-90 PET/CT and Bremsstrahlung SPECT/CT. *Clinical Nuclear Medicine* 2012; **37**: 98–99.
- Wallstabe I, Bakos G, Plötner A *et al.* Gastroduodenal ulceration after selective internal radiation therapy of liver tumor. *Endoscopy* 2012; **44**: E354–355.
- Latif E, Chua TC, Morris DL. Damage control surgery for liver rupture following selective internal radiation therapy for unresectable colorectal liver metastases. *ANZ Journal of Surgery* 2011; **81**: 570–572.

- Brown DB. Hepatic artery dissection in a patient on bevacizumab resulting in pseudoaneurysm formation. *Seminars in Interventional Radiology* 2011; **28**: 142–146.
- Nosher JL, Ohman-Strickland PA, Jabbour S *et al*. Changes in liver and spleen volumes and liver function after radioembolization with yttrium-90 resin microspheres. *Journal of Vascular and Interventional Radiology* 2011; **22**: 706–716.
- Lance C, McLennan G, Obuchowski N *et al*. Comparative analysis of the safety and efficacy of transcatheter arterial chemoembolization and yttrium-90 radioembolization in patients with unresectable hepatocellular carcinoma. *Journal of Vascular and Interventional Radiology* 2011; **22**: 1697–1705.
- Guha C, Kavanagh BD. Hepatic radiation toxicity: avoidance and amelioration. *Seminars in Radiation Oncology* 2011; **21**: 256–263.
- Piana PM, Gonsalves CF, Sato T *et al*. Toxicities after radioembolization with yttrium-90 SIR-Spheres: Incidence and contributing risk factors at a single center. *Journal of Vascular and Interventional Radiology* 2011; **22**: 1373–1379.
- Paprottka PM, Schmidt GP, Trumm CG *et al*. Changes in normal liver and spleen volume after radioembolization with ⁹⁰Y-resin microspheres in metastatic breast cancer patients: Findings and clinical significance. *Cardiovascular and Interventional Radiology* 2011; **34**: 964–972.
- Liu DM. Interventional oncology – avoiding common pitfalls to reduce toxicity in hepatic radioembolization. *Journal of Nuclear Medicine & Radiation Therapy* 2011; **2**: 106 ePub doi: 10.4172/2155-9619.1000106.
- Meer AB, Louie JD, Abdelmaksoud MHK *et al*. Intrahepatic collateral supply to the previously embolized right gastric artery: a potential pitfall for nontarget radioembolization. *Journal of Vascular and Interventional Radiology* 2011; **22**: 575–577.
- Ahuja C, Chadha M, Critchfield JJ. Intraoperative carcinoid hypertensive crisis precipitated by yttrium 90 microsphere radioembolotherapy. *Endocrine Practice* 2010; **16**: 1074–1075.
- Yang CW, Yen HH, Su WW *et al*. Profound transient thrombocytopenia associated with ⁹⁰yttrium microsphere therapy for inoperable hepatoma. *Southern Medical Journal* 2010; **103**: 1264–1268.
- Nair J, Liu C, Caridi J *et al*. Gastroduodenal ulcerations as a delayed complication of hepatic metastasis radioembolization. *Journal of Clinical Oncology* 2010; **28**: e735–736.
- Sjoquist KM, Goldstein D, Bester L. A serious complication of selected internal radiation therapy: case report and literature review. *The Oncologist* 2010; **15**: 830–835.
- Kubisch CH, Beigel F, Ihrler S *et al*. Oesophageal ulceration after selective internal radiation therapy in a patient with carcinoma of unknown primary. *Zeitschrift für Gastroenterologie / German Journal of Gastroenterology* 2010; **48**: 546–550.
- Naymagon S, Warner RR, Patel K *et al*. Gastroduodenal ulceration associated with radioembolization for the treatment of hepatic tumors: an institutional experience and review of the literature. *Digestive Diseases and Sciences* 2010; **55**: 2450–2458.
- Ulenaers M, Dedeurwaerdere F, Christiaens P. Gastric ulceration complicating selective internal radiation therapy of liver metastases. *Clinical Gastroenterology and Hepatology* 2010; **8**: A18.
- Jazwinski A, Bentley R, Teitelman M. Gastric ulceration in a patient treated with SIR-Spheres. *Clinical Gastroenterology and Hepatology* 2010; **8**: A22.
- Aloia TA, Barakat O, Connelly J *et al*. Gastric radiation enteritis after intra-arterial yttrium-90 microsphere therapy for early stage hepatocellular carcinoma. *Experimental and Clinical Transplantation* 2009; **7**: 141–144.
- Schultz CC, Campbell J, Bakalyar D *et al*. Y-90 microsphere therapy: prevention of adverse events. *Cancer Biotherapy & Radiopharmaceuticals* 2009; **24**: 427–333.
- Silvanto A, Novelli M, Lovat L. SIRT--an uncommon cause of gastroduodenal ulceration. *Histopathology* 2009; **55**: 114–115.
- Riaz A, Lewandowski RJ, Kulik LM *et al*. Complications following radioembolization with Yttrium-90 microspheres: A comprehensive literature review. *Journal of Vascular and Interventional Radiology* 2009; **20**: 1121–1130.
- Konda A, Savin MA, Cappell MS, Duffy MC. Radiation microsphere-induced GI ulcers after selective internal radiation therapy for hepatic tumors: an underrecognized clinical entity. *Gastrointestinal Endoscopy* 2009; **70**: 561–567.

- Rühl R, Seidensticker M, Peters N *et al.* Hepatocellular carcinoma and liver cirrhosis: assessment of the liver function after Yttrium-90 radioembolization with resin microspheres or after CT-guided high-dose-rate brachytherapy. *Digestive Diseases* 2009; **27**: 189–199.
- Schleipman AR, Gallagher PW, Gerbaudo VH. Optimizing safety of selective internal radiation therapy (SIRT) of hepatic tumors with ⁹⁰Y resin microspheres: a systematic approach to preparation and radiometric procedures. *Health Physics* 2009; **96** (2 Suppl): S16–S21.
- Leong QM, Lai HK, Lo RGH *et al.* Radiation dermatitis following radioembolization for hepatocellular carcinoma: A case for prophylactic embolization of a patent falciform artery. *Journal of Vascular and Interventional Radiology* 2009; **20**: 833–836.
- Siddiqi NH, Khan AJ, Devlin PM. Palonosetron – A single-dose antiemetic adjunct for hepatic artery radioembolization: A feasibility study. *Cardiovascular and Interventional Radiology* 2009; **32**: 47–51.
- Kennedy AS, McNeillie P, Dezarn WA *et al.* Treatment parameters and outcome in 680 treatments of internal radiation with resin ⁹⁰Y-Microspheres for unresectable hepatic tumors. *International Journal of Radiation Oncology, Biology and Physics* 2009; **74**: 1494–1500.
- Zimmermann L, Dudeck O, Schmitt J, Ricke J, Roessner A, Malfertheiner P, Mönkemüller K. Duodenal ulcer due to yttrium microspheres used for selective internal radiation therapy of hepatocellular cancer. *Gastrointestinal Endoscopy* 2009; **69**: 977–978.
- Crowder CD, Grabowski C, Inampudi S *et al.* Selective internal radiation therapy-induced extrahepatic injury: an emerging cause of iatrogenic organ damage. *American Journal of Surgical Pathology* 2009; **33**: 963–975.
- Cao C, Yana TD, Baillie T, Bester L. Radiation cholecystitis—A case report after Yttrium-90 microsphere therapy. *European Journal of Radiology Extra* 2009; **72**: e73–e74.
- Nelson K, Vause PE Jr, Koropova P. Post-mortem considerations of Yttrium-90 ⁹⁰Y microsphere therapy procedures. *Health Physics* 2008; **95** (5 Suppl): S156–S161.
- Ogawa F, Mino-Kenudson M, Shimizu M *et al.* Gastroduodenitis associated with yttrium 90-microsphere selective internal radiation: an iatrogenic complication in need of recognition. *Archives of Pathology and Laboratory Medicine* 2008; **132**: 1734–1738.
- Chernyak I, Bester L, Freund J, Richardson M. Anterior abdominal wall uptake in intrahepatic arterial brachytherapy with yttrium-90 SIR-Spheres for hepatic malignancy. *Clinical Nuclear Medicine* 2008; **33**: 677–680.
- South CD, Meyer MM, Meis G *et al.* Yttrium-90 microsphere-induced gastrointestinal tract ulceration. *World Journal of Surgical Oncology* 2008; **6**: 93.
- Hoffman MA, Rubin JI, Vinceguerra VP, Nowakowski FS, Warner RPR. Severe coagulopathy after ⁹⁰Y microsphere administration: Resemblance to the Kasabach-Merritt syndrome. *Journal of Vascular and Interventional Radiology* 2008; **19**: 1099–1102.
- Townsend A, Price TJ, Patterson K, Pittman K. Fluorouracil-induced hepatic artery spasm preventing yttrium-90 microsphere administration. *Clinical Nuclear Medicine* 2008; **33**: 528–530.
- Ng SS, Yu SC, Lai PB, Lau WY. Biliary complications associated with selective internal radiation (SIR) therapy for unresectable liver malignancies. *Digestive Diseases and Sciences* 2008; **53**: 2813–2817.
- Mallach S, Ramp U, Erhardt A *et al.* An uncommon cause of gastro-duodenal ulceration. *World Journal of Gastroenterology* 2008; **14**: 2593–2595.
- Thamboo TP, Wai CT, Lim LG, Wang SC. Late gastric ulceration and cytomegalovirus infection following selective internal radiation therapy (SIRT) of the liver. *Pathology* 2008; **40**: 303–305.
- Sangro B, Gil-Alzugaray B, Rodriguez J *et al.* Liver disease induced by radioembolization of liver tumors. *Cancer* 2008; **112**: 1538–1546.
- Price TJ, Townsend A. Yttrium 90 microsphere selective internal radiation treatment of hepatic colorectal metastases. *Archives of Surgery* 2008; **143**: 313–314.
- Neff R, Abdel-Misih R, Khatri J *et al.* The toxicity of liver directed yttrium-90 microspheres in primary and metastatic liver tumors. *Cancer Investigation* 2008; **26**: 173–177.
- Newland L, Walsh A, Gilbert D *et al.* Selective Internal Radiation Therapy: A case of SIR-Sphere associated duodenal ulceration. *Pathology* 2007; **39**: 526–528.
- Gulec SA and Siegel JA. Posttherapy radiation safety considerations in radiomicrosphere treatment with ⁹⁰Y-microspheres. *Journal of Nuclear Medicine* 2007; **48**: 2080–2086.

- Murthy R, Brown DB, Salem R *et al.* Gastrointestinal complications associated with hepatic arterial yttrium-90 microsphere therapy. *Journal of Vascular and Interventional Radiology* 2007; **18**: 553–562.
- Yarze JC, Hoffman MM. Another case of severe, chronically symptomatic, nonhealing gastroduodenal injury after radioembolization of hepatic tumor. *American Journal of Gastroenterology* 2007; **102**: 2863. [Comment on: Carretero *et al.* *American Journal of Gastroenterology* 2007 Jun; **102**: 1216–1220.]
- Carretero C, Munoz-Navas M, Betes M *et al.* Gastroduodenal injury after radioembolization of hepatic tumors. *American Journal of Gastroenterology* 2007; **102**: 1–5.
- Szyszkowski T, AL-Nahhas A, Tait P *et al.* Management and prevention of adverse effects related to treatment of liver tumours with ⁹⁰Y microspheres. *Nuclear Medicine Communications* 2007; **28**: 21–24.
- Stubbs R. Portal hypertension and liver surgery following selective internal radiation therapy with ⁹⁰Yttrium microspheres. *Journal of Clinical Oncology* 2006; **24**: 15e. [Comment on Ayav *et al.* *Journal of Clinical Oncology* 2005; **23**: 8275–8276.]
- Brock H; Günther RW; Haage P. Leberzirrhose als Folge selektiver hepatischer Radioembolisation mit ⁹⁰Yttrium-Mikrosphären. *Fortschritte auf dem Gebiet der Röntgenstrahlen und der bildgebenden Verfahren* 2006; **178**: 538–549. [in German]
- Ayav A, Habib N, Jiao L. Portal hypertension secondary to ⁹⁰Yttrium microspheres: An unknown complication. *Journal of Clinical Oncology* 2005; **23**: 8275–8276.
- Yip D, Allen R, Ashton C *et al.* Letter: Radiation-induced ulceration of the stomach secondary to hepatic embolization with radioactive yttrium microspheres in the treatment of metastatic colon cancer. *Journal of Gastroenterology and Hepatology* 2004; **19**: 347–349.
- Thamboo T, Tan K, Wang S *et al.* Extra-hepatic embolisation of Y-90 microspheres from selective internal radiation therapy (SIRT) of the liver. *Pathology* 2003; **35**: 351–353.
- Wickremesekera J, Chen W, Cannan R *et al.* Serum proinflammatory cytokine response in patients with advanced liver tumors following selective internal radiation therapy (SIRT) with yttrium-90 microspheres. *International Journal of Radiation Oncology, Biology and Physics* 2001; **49**: 1015–1021.
- Dancey JE, Goin J. *J Nucl Med* 2001; **42**: 1588–1589. [Comment on Ho *et al.* *Journal of Nuclear Medicine* 2001; **42**: 1587–1588.]
- Ho S, Lau J, Leung T. Intrahepatic Y-90 microspheres for hepatocellular carcinoma. *Journal of Nuclear Medicine* 2001; **42**: 1587–1588.
- Yorke ED, Jackson A, Fox RA, Wessels BW, Gray BN. Can current models explain the lack of liver complications in Y-90 microsphere therapy? *Clinical Cancer Research* 1999; **5**: 3024a–3030a.
- Leung T, Lau W, Ho S *et al.* Radiation pneumonitis after selective internal radiation treatment with intraarterial yttrium-90 microspheres for inoperable hepatic tumors. *International Journal of Radiation Oncology, Biology and Physics* 1995; **33**: 919–924.
- Gray BN, Burton MA, Kelleher D *et al.* Tolerance of the liver to the effects of Yttrium-90 radiation. *International Journal of Radiation Oncology, Biology and Physics* 1990; **18**: 619–623.

Abstracts on Managing Side Effects and Complications

- Osborne D, Acuff S, Whittle B *et al.* Preliminary assessment of hospital staff body and hand radiation exposure during Y90 radioembolization dose preparation and administration. *Society of Interventional Radiology (SIR) 43rd Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2018; **29** (4): S57–S58 Abs. 127.
- Prins P, Wahnschafft S, Guevara KR *et al.* Assessment of the incidence of medical events reported following Y90 treatment. *ASCO Gastrointestinal Cancers Symposium* 2017; **35** (Suppl 4S): Abs. 491.
- Arslan B, Chong B, Ahmed O *et al.* Assessing arterial complications related to radioembolization with yttrium-90 microspheres. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2016; **27**: 785.e32 Abs.
- Chong B, Ahmed O, Madassery S *et al.* Assessing intra-arterial complications following lobar radioembolization with yttrium-90 microspheres. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S65 Abs. 136
- Fidelman N, Devulapalli K, Miller M *et al.* Safety of yttrium-90 radioembolization for patients with history of biliary tract instrumentation: A multicenter study. *Society of Interventional Radiology (SIR)*

41st Annual Scientific Meeting, *Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S6–S7 Abs. 7.

Pasciak A, Bourgeois A, Pasciak A *et al.* How sensitive is the upper GI tract to yttrium-90 radioembolization? Gross pathological analysis as a function of absorbed dose in a porcine model. *Society of Interventional Radiology (SIR) 41st Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2016; **27** (Suppl): S65 Abs. 137.

Patil VV, Patel RS, Tabori NE *et al.* Safety and feasibility of selective internal radiation therapy planning using a left transradial access without conscious sedation. *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 39.

Dieudonné A, Siebert A, Abdel-Rehim M *et al.* Feasibility and safety of selective internal radiation therapy (SIRT) procedure in one day. *European Association of Nuclear Medicine (EANM) Annual Meeting, European Journal of Nuclear Medicine and Molecular Imaging* 2015; **42** (Suppl 1): Abs. OP332.

Mills-Robertson E, Hunt S, Dunn A *et al.* Increased toxicity following SIR-Spheres radioembolization in patients with hypoalbuminemia. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2015; Abs. 2206.5.

Hardman RL, Enniss T, O'Hara R. Case-control retrospective comparison of the incidence of cholecystitis using standard microcatheter techniques versus flow-directed catheter (Surefire). *World Conference on Interventional Oncology (WCIO) meeting* 2015; **26**: Poster 79.

Vanderhoek M, McKenney S, Huang S, Harkness B. Fear not the Y-90 surgical staff dose. *American Association of Physicists in Medicine Annual Meeting, Medical Physics* 2015; **42**: 3710 Abs. TH-AB-BRA-11.

Roberson J, McDonald AM, Baden CJ *et al.* Factors associated with increased incidence of toxicities following administration of yttrium-90 resin microspheres. *ASCO Gastrointestinal Cancers Symposium, Journal of Clinical Oncology* 2015; **33** (suppl 3): Abs. 409.

Bilbao JI, Sangro B, Schoen M *et al.* The post-SIR-Spheres surgery study (P4S): Analysis of outcomes following hepatic resection of patients previously treated with selective internal radiation therapy (SIRT), with or without exposure to future liver remnant (FLR) *Society of Interventional Radiology (SIR) 40th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2014; Abs. 192.

Soulen MC, Deitrick G, van Houten D *et al.* Feasibility of combining capecitabine and temozolomide with yttrium-90 radioembolization (CapTemY90) for intermediate-grade metastatic neuroendocrine tumors. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2014; Abs. 3104.1.

Fischman AM, Lewis SC, Patel R *et al.* Prospective, randomized study of coiling vs surefire infusion system in Y-90: Clinical outcomes in HCC patients—subgroup analysis of safety and efficacy from the COSY Trial. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2014; Abs.3104.6.

Siebert DR, Kowalik KJ, D'Souza D *et al.* Liver failure following yttrium-90 treatment in complex hepatocellular cancer patients: Experience at a single center. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2014; **25**: 811.e23 Abs.

Mahvash A, Moayyad J, Shreyaah S *et al.* Y90 radioembolization in patients with compromise of the Ampulla of Vater. *GEST meeting abstracts, Journal of Vascular and Interventional Radiology* 2012; **23**: 577.e12 Abs.

Gil-Alzugaray B, Iñarrairaegui M, Benito A *et al.* Incidence and risk factors of radioembolization (RE)-induced liver disease: results of global therapeutic strategy aiming to prevention. *47th annual meeting of the European Association for the Study of the Liver (EASL), Journal of Hepatology* 2012; **56** (Suppl 2): S402 Abs. 1028.

McCann JW, Larkin AM, Moore LT *et al.* Multi-center correlation of external exposure rates from ⁹⁰Y radioembolization patients: contact precautions are unnecessary based on nuclear regulatory commission regulations. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S68–69 Abs. 164.

Louie JD, Wang EA, Broadwell S *et al.* First in man experience with the Surefire infusion system: a dedicated microcatheter system to eliminate reflux during embolotherapy. *Society of Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2012; **23** (Suppl): S80 Abs. S195.

Wang DS, Louie JD, Shah RP *et al.* Prophylactic topically applied ice to prevent cutaneous complications of nontarget chemoembolization and radioembolization of liver tumors. *Society of*

Interventional Radiology (SIR) 37th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology 2012; **23** (Suppl): S84 Abs. 203.

Ahmadzadehfar H, Muckle M, Sabet A *et al.* The effectiveness of Bremsstrahlung SPECT-CT of the abdomen after radioembolization in the prediction of radiation induced gastroduodenal side effects. *Society of Nuclear Medicine (SNM) Annual Meeting, Journal of Nuclear Medicine* 2011; **52** (Suppl 1): Abs. 1361.

Abdelmaksoud M, Chang D, Eclov NC *et al.* Safety of Y90 radioembolization in patients who have undergone previous external beam radiation therapy. *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2011; **22** (Suppl): S87 Abs. 201.

Piana P, McCann JW, Anne R *et al.* Toxicities following radioembolization with Y90 SIR-Spheres: Incidence and contributing risk factors at a single center. *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2011; **22** (Suppl): S88 Abs. 206.

Sag AA, Savin MA, Lal NR *et al.* The post-Yttrium-90 microsphere gallbladder: Imaging findings and incidence of cholecystitis. *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2011; **22** (Suppl): S101 Abs. 237.

Underhill MP, Getzen TM, Myers D *et al.* Cholecystitis following hepatic embolization? Appearances may be deceiving. *Society of Interventional Radiology (SIR) 36th Annual Scientific Meeting, Journal of Vascular and Interventional Radiology* 2011; **22** (Suppl): S122 Abs. 289.

Nutting C, Kennedy A, Kortz E. Radioembolization of liver metastases in the setting of a violated Ampulla. *GEST meeting* 2010; Abs.

Rose SC, Nelson KJ, Finch MR. Protecting the gut from toxic hepatic regional therapy. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2009; Abs. P-156.

Rose SC, Nelson KJ, Finch MR. Acute systemic hypertension precipitated by ⁹⁰Y radioembolization. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2009; Abs. P-167.

McWilliams JP, Lee EW, Kee ST *et al.* Distal protection of the gallbladder through embolization of the cystic artery prior to radioembolization: technical feasibility and safety. *Cardiovascular and Interventional Radiology in Europe (CIRSE)* 2009; Abs. P-150.

Iñarrairaegui M, D'Avola D, Bilbao JI *et al.* Toxicity of Y90-radioembolisation resulting from radiation of non-target tissues. *3rd International Liver Cancer Association (ILCA) meeting* 2009; Abs. O-026.

Alonso-Burgos A, Martinez-Cuesta A, Valero M *et al.* Complications of the radioembolization (RE) of liver tumors: prevention and treatment. *Cardiovascular and Interventional Radiology* 2007; Abs. P-73.

Kennedy AS, Dezarn W, McNeillie P *et al.* Repeat ⁹⁰Y-microsphere radioembolization for hepatic malignancies: Safety and patient selection issues. *ASCO Annual Meeting Proceedings Part I Journal of Clinical Oncology* 2007; **25** No. 18S (June 20 Suppl): Abs. 15177.

Kennedy AS, Dezarn W, McNeillie P *et al.* Liver tolerance to repeat ⁹⁰Y-microsphere radioembolization. *ASCO Gastrointestinal Cancers Symposium* 2007; Abs. 191.

Books and Book Chapters

Books

Bilbao JI, Reiser MF (eds). Liver radioembolization with ⁹⁰Y microspheres; 2nd Edition. Springer, New York 2014; ISBN 978-3-642-36473-0.

Kennedy A, Nag S, Murthy R *et al.* Liver-directed radiotherapy using ⁹⁰Y microspheres (radioembolization) for primary and metastatic cancers: Key concepts & clinical updates. Wake Radiology and Postgraduate Institute for Medicine 2008.

Hoffmann RT, Reiser M (eds). Selektive interne radiotherapie (SIRT) – Grundlagen und klinische anwendung. Uni-Med Verlag AG, Bremen-London-Boston, 2008; ISBN: 978-3-8374-1033-4. [in German]

Book Chapters

Abou-Alfa GK, Marrero J, Renz J, Lencioni R. Hepatocellular carcinoma tumor board: Making sense of the technologies. *American Society of Clinical Oncology Educational Book* 2015; **35**: e213–220.

Gardiazabal J, Esposito M, Matthies P *et al.* Towards personalized interventional SPECT-CT imaging. *Medical Image Computing and Computer-Assisted Intervention* 2014; **17**: 504–511.

Kennedy AS. Radiation oncology approaches in liver malignancies. *American Society of Clinical Oncology Educational Book* 2014; **34**: 150–155.

Riaz A, Salem R. Radioembolization for Liver Tumors. In: Blumgart L (Org.). Surgery of the liver, biliary tract and pancreas. 5th ed. New York: Elsevier, 2012; **2**: 1362-1369.e2.

Wagman LD, Robertson JM, Raftery L, O'Neil B. Liver, gallbladder, and biliary tract cancers. In: Pazdur, Wagman LD, Camphausen KA, Hoskins WJ (eds.), Cancer Management: A Multidisciplinary Approach; 13th Edition. CMP Healthcare Media LLC, 2011.

Murthy R, Mutha P, Gupta S. Yttrium-90 radioembolotherapy for hepatocellular cancer. In: McMasters KM, Vauthey JN (eds.), Hepatocellular Carcinoma, Springer, New York 2011; 319–335.

Georgiades CS, Geschwind JF. Transcatheter Management of Neoplasms. In: Minev BR (ed). Cancer Growth and Progression, 1, Volume 13, Cancer Management in Man: Chemotherapy, Biological Therapy, Hyperthermia and Supporting Measures. Springer, New York 2011; 341–347.

Riaz A, Kulik L, Abecassis M, Salem R. Internal radiation therapy for liver tumors. In: Clavien PA (ed). Malignant Liver Tumors: Current and Emerging Therapies. Wiley-Blackwell, Chichester, UK: 2010; 131–138.

Kennedy A, Welsh J. Radioembolization with yttrium-90 microspheres for primary and metastatic hepatic cancer. In: Speer TW (ed). Targeted radionuclide therapy. Lippincott Williams & Wilkins, 2010; 305–317.

Riaz A, Salem R. Liver tumors: metastases. In: Kessel D, Ray C (eds). Transcatheter Embolization and Therapy; Techniques in Interventional Radiology, Part 2, 2010; 197–203.

069: Radioembolization for Hepatocellular Carcinoma; and 071: Radioembolization for Other Hepatic Malignancies. In: Mauro MA, Murphy K, Thomson K, Venbrux A and Zollikofer CL (eds). Image-Guided Interventions: Expert Radiology Series. Elsevier, New York: 2008.

Stubbs RS, Correia MM. Selective internal radiation therapy for liver tumours. In: Blumgart L (Org.). Surgery of the liver, biliary tract and pancreas. 4th ed. New York: Elsevier, 2006; 567–577.

Al-Nahhas A, Szyszko T, Tait P, Damrah O, Canelo R. Selective internal radiation therapy (SIRT) in the management of liver tumours. In Karaliotas C, Broelsch C, Habib N (eds): Liver and biliary tract surgery. Springer, New York 2006; 409–418.

Zacharoulis D, Habib NA, Jiao R. The use of Sirtex in inoperable liver tumours. A surgeon's view. In Karaliotas C, Broelsch C, Habib N (eds): Liver and biliary tract surgery. Springer, New York 2006; 419–420.

Thomadsen B, Welsh J, Hammes R. Microspheres as microbrachytherapy, in Thomadsen B, Rivard M, Butler W (eds): Brachytherapy physics (2nd Edition). Madison, Wisconsin, Medical Physics Publishing 2005; 955–965.

Stubbs R. Local radio ablative techniques for liver tumors. 2nd ed. Sudbury, Massachusetts: Jones and Bartlett; 2003.

Stubbs R, Cannan R. Selective internal radiation therapy with ⁹⁰yttrium microspheres for primary or metastatic cancer confined to the liver. In: Habib N, editor. Multi-treatment modalities of liver tumours. New York: Kluwer Academic/Plenum Publishers; 2002. pp. 305–321.

Lau W, Ho S, Leung T. Internal radiation therapy through the hepatic artery. In: Habib N, editor. Multi-treatment modalities of liver tumours. New York: Kluwer Academic/Plenum. 2002.

Willmott N, Daly J, Gray B. Perspectives in the management of liver metastases. In: Willmott N, Daly J, editors. Microspheres and regional cancer therapy: CRC Press Inc. 1994; 229–235.