



Ten-year clinical experience shows Yttrium-90 microspheres achieve local control of liver cancer in over 80% of patients at Clínica Universidad de Navarra (CUN)

- Ten years ago CUN became European pioneer in the use of radioembolization, or Selective Internal Radiation Therapy (SIRT) with SIR-Spheres® microspheres, for the treatment of liver tumours
- It is the Spanish medical center most experienced in this therapy, which has been used in over 400 patients.

Pamplona (Spain), 21st November 2013. The Clínica Universidad de Navarra (CUN) today celebrated its tenth anniversary of using Yttrium-90 microsphere radioembolization for the treatment of liver cancer. It is the pioneer center in Spain and one of the most experienced in Europe in this procedure, with which it has treated over 400 patients.

“The technique involves injecting tiny microspheres, charged with the radioactive isotope Yttrium-90, into the hepatic artery from where they address preferably to the tumor lesion. The microspheres remain lodged in the tumor lesion emitting radiation that damages the tumor cells,” explains Doctor Bruno Sangro, Director of the CUN’s Liver Unit. Since September 2003, when the Hospital first began to use this procedure, specialists have evaluated 500 patients with primary liver cancer or hepatic metastases from other tumours. Of these patients, 400 have been treated with radioembolization.

At the present time, treatment with resin Yttrium-90 microspheres, a procedure developed by *SIRTEX*, has now become widespread for patients with liver cancer. Ten



years ago, the Clínica Universidad de Navarra was the first center in Spain to use it. **“From the 400 treated patients, there are very clear data on the efficacy of radioembolization. This technique has in many instances enabled rescue surgery in patients for whom surgery was not initially indicated”,** Dr. Sangro explained. **“Over this past decade, we have improved the way we select patients and perform the treatment, and this has enabled us to reduce the side effects”.**

Although disease control is achieved in a high number of patients, the duration of this effect is very variable. However, it is noteworthy that of the first two patients treated at the Hospital ten years ago, one is living with controlled disease and the other is disease free thanks to a transplant which was initially contraindicated.

Radioembolization may allow other curative treatments

Dr. Sangro describes treatment with Yttrium microspheres as a complex, multidisciplinary procedure that requires the close collaboration of Nuclear Medicine, Conventional and Interventional Radiology, Hepatology, Oncology and its Hepatobiliopancreatic Area. In primary liver tumours, also known as hepatocellular carcinoma (155 of those treated), the results show that **“the treatment was effective in preventing the growth of treated lesions: it achieved disease control in over 80% of patients, sometimes over prolonged periods of time, and in some very selected patients eradication was even achieved”.** However, it does not prevent the possibility of new lesions occurring in the liver or other organs.

Dr. Sangro stresses that **“radioembolization is a good palliative treatment, and can be added to other options already available at the Clínica Universidad de Navarra for primary tumors. Furthermore, it can open the door to other curative treatments, such as liver transplantation, liver resection or percutaneous ablation. It could also enable the complete elimination of the tumor.”**

Treatment Results at CUN

Over these ten years' experience, the survival results obtained by the CUN's multidisciplinary team can be analysed according to tumour type, because the expectations could differ, although in all cases the patients treated had a poor



prognosis and advanced disease. Thus, 3 years after treatment, 18% of patients with primary liver cancer (hepatocellular carcinoma) and 16% of those who had hepatic metastases from colorectal cancer were alive. In the absence of treatment with microspheres the expected 3-year survival rate is between 1% and 5% of patients.

Results in patients with liver metastases

For patients with neuroendocrine hepatic metastases, the 3-year survival rate is 64%, which is not significantly different compared to the survival rate without treatment with microspheres (40-50%). However, the main benefit to these patients lies in improving quality of life by controlling the symptoms.

Patients with hepatic metastases from gastrointestinal and breast cancer have also been treated with this procedure at CUN. The technique is used in certain patients with colon cancer: **“either those who have already received all the possible treatment options, used alone or concomitantly with systemic treatments, or as a means of consolidating the response obtained with initial chemotherapy, thus prolonging its effect. Local control of the disease is relatively good because most of the relapses are produced outside the liver”**, said Dr. Javier Rodríguez, of the CUN Oncology Department.

It should be pointed out that colon cancer is the second most common cancer in Spain. Furthermore, the liver is the organ where metastases from other tumors occur more frequently. **“It has been demonstrated that these spheres curb and reduce the disease in colon tumors with liver metastases that have relapsed after other systemic treatments. There are studies comparing a group receiving a combination of chemotherapy and spheres with another group of patients who only receive chemotherapy. The group who received the combined therapy demonstrated, at medium term, a significantly superior probability of decreasing the metastatic disease and of a higher survival time”**, explains Dr. Rodríguez. In patients with breast and kidney tumors it has been observed that after a follow up of more than two years **“prolonged control of the disease has been achieved”**

In other types of treated tumors, control of the disease ranges from 6 to 12 months. Dr. Rodríguez considers that **“data on gastrointestinal tumors support the effectiveness of the technique as third or fourth line treatment, which indicates**



its potential benefit in patients who have had less pre-treatment". In fact, CUN has participated in international studies to support the use of first-line radioembolization in persons for whom surgery is not an option. For this reason, the CUN specialist estimates that in the future this technique can be brought forward to the initial stages, taking advantage of a good prior assessment and combining it with other procedures.

Advantages of radioembolization

The advantage of treating liver tumors by radioembolization is that it is not an exclusive procedure. According to doctor Sangro, **"it can be administered in combination with chemotherapy in those tumors that are sensitive to this treatment. Furthermore, it is well tolerated, does not require long stays in hospital, (patients usually remain in hospital just one day, or may even not be hospitalized) and it has a low risk of complications."**

The procedure in detail

Yttrium-90 microsphere radioembolization directly irradiates liver tumors, thus sparing to a large extent the healthy liver tissue. **"The microspheres are injected through a catheter into the hepatic artery, the only vessel that irrigates the liver tumor area. This ensures that the radiation is preferentially delivered to the tumors. Ten years ago we had external radiation techniques available that were relatively selective for single tumors. The advantage of radioembolization is that it can be administered from within the body and can also be used for multiple tumors"**, points out Dr José Ignacio Bilbao, head of the Clinic's Interventional Radiology Unit.

Catheterization for radioembolization is performed by a percutaneous puncture of the femoral artery, **"so that, once the catheter has reached the hepatic artery, different devices are passed through with which the arterial vessels closer to the lesion are selectively accessed. At this point the Yttrium-90 charged particles are released. The microspheres become lodged in the tumor vessels, from where they exert their therapeutic effect,"** the specialist explains. The particles are tiny, about 30 microns and they each generate a radiation that travels a diameter of approximately 11 mm. **"Therefore the great majority of the radiation remains**



inside the tumor and does not significantly affect the healthy liver,” Dr Bilbao adds

With this procedure, **“the tumors shrink and after treatment the patients can benefit from surgery, which not only improves their situation but also their survival,”** Dr. Bilbao points out doctor Bilbao. Radioembolization is a treatment that **“has demonstrated to be highly effective, not only in the treatment of primary liver tumors but also in a wide range of hepatic metastases”**, he emphasises.

In this regard, Dr. Sangro points that treatment with Yttrium-90 microspheres **“is no longer an experimental treatment, but a reality that helps to improve the survival of patients who undergo this treatment.”** During CUN’s experience for the last 10 years, **“we have contributed to the improvement of the technique. We have over 30 scientific papers published and this reflects our team’s eagerness in making radioembolization a more effective and safer technique for patients,** “says the hepatologist.



Photo Caption: The Clínica Universidad de Navarra radioembolization team (from left to right, Doctors Fernando Pardo (head of Hepatobiliopancreatic Surgery), Mercedes Iñarrairaegui (Liver Unit), Bruno Sangro (head of Liver Unit), Macarena Rodríguez (Nuclear Medicine), Alberto Benito (Radiodiagnostics), José Ignacio Bilbao (Interventional Radiology), and Ana Chopitea (Oncology))

The following are available at www.cun.es/la-clinica/prensa

- Text in DOC
- High resolution photographs in JPG
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If you need further information, please contact the Communications Department of the Clínica Universidad de Navarra telephone number 948 296 497.

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