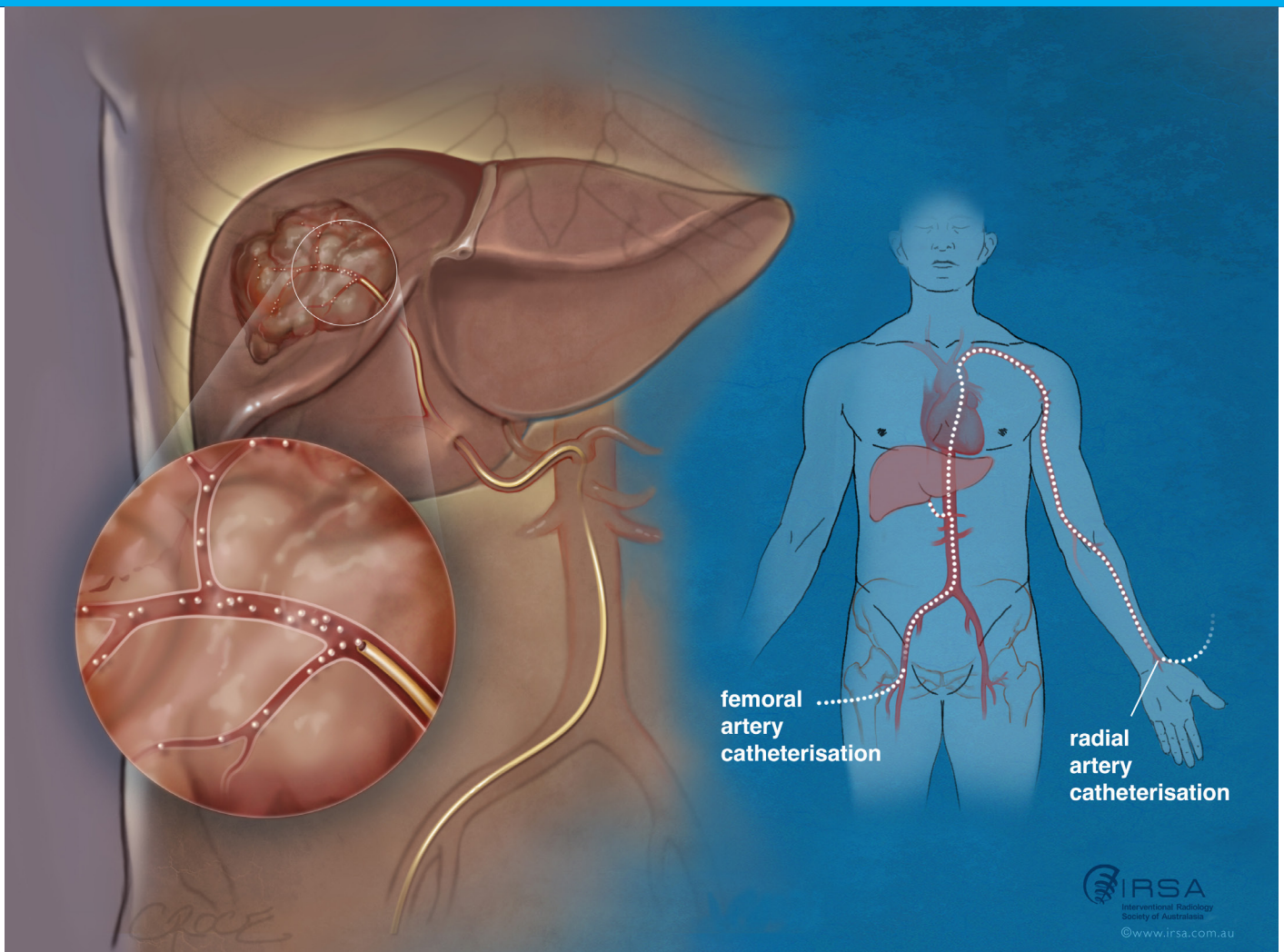


SELECTIVE INTERNAL RADIATION THERAPY (SIRT)



1. WHAT IS SIRT?

SIRT is a minimally invasive treatment for tumours arising in the liver or that have spread to the liver, from other places in the body, such as the bowel or breast.

Tiny radioactive microspheres are delivered through the arteries directly into the liver and concentrate within the liver tumours. They then release radiation into the tumours over the following weeks.

2. WHY WOULD MY DOCTOR REFER ME TO HAVE THIS PROCEDURE?

SIRT is an appropriate choice of treatment where surgical removal or ablation of tumour(s) is not suitable. If you have liver failure, your liver function may not be adequate to cope with SIRT.

3. HOW DO I PREPARE FOR THE PROCEDURE?

You will be asked to discuss your previous cancer history and any other medical conditions you may have. Several initial tests to ensure that it is possible for you to receive SIRT safely will be conducted.

The treatment requires an overnight stay in hospital. Your treating doctor will advise what arrangements need to be made for hospital admission. You may need to check with the hospital what you need to bring with you for admission.

4. WHAT HAPPENS DURING THE PROCEDURE?

SIRT is performed in a radiology angiography suite.

On average, a treatment consists of two 2-hour procedures.

Local anaesthetic and twilight anaesthesia are normally administered. You will be awake and able to talk and ask questions. You may feel completely normal or slightly sleepy/relaxed due to the twilight medications.

The procedure is performed via a small tube normally via the right groin or left wrist. A thin plastic tube called a catheter is guided via x-ray control into the liver artery. An even finer tube, called a microcatheter, is used to navigate the arteries within the liver. A map of the arteries including the tumour is then taken using injections of iodine dye (the same dye as used in CT scans) and the treatment planned.

The first session is a “test run” wherein a harmless test dose of radiation is injected into the liver and the procedure is completed. A nuclear medicine scan is then performed (which takes about one hour) to check the test dose has been delivered safely and effectively. This also allows the dose of therapy to be planned. You can normally go home the same day.

The second treatment session is planned for 2-3 weeks after the first and is much the same from a patient perspective. The same arteries are accessed. The dose of SIR-Spheres is slowly infused, and the treatment is finished. Once again, a nuclear scan is performed, this time to assess the treatment dose itself.

This time an overnight stay in hospital is planned for monitoring and any medications that may be needed to manage pain.

5. WHAT IS THE RECOVERY NORMALLY LIKE?

You should not have any serious side effects when SIRT is correctly administered. However, you may experience some of the following side effects:

- Pain in the abdomen that may last for a few hours: This can be well controlled with pain medication.
- Nausea may be caused by the angiography contrast medium that is injected into the vessels or because of the SIR-Spheres infusion into the liver: This is a short-term effect (several days) which can be well controlled with anti-nausea medication.
- Reduced appetite: Some patients may feel a loss of appetite for several days.
- Tiredness: This may be caused by the effect of the radiation on the liver tumours and may last several days.
- Fever: The destruction of the liver tumours and the by-products of this destruction may cause a short-term fever (up to a week). This can be well controlled with paracetamol or a similar over the counter analgesic.
- Radiation in the body: Your treating doctor will advise you on the effects of radiation and will advise that contact with other people should be minimised for at least the first week after treatment. This means that prolonged, close physical contact should be avoided, such as, sitting/sleeping next to children or pregnant women. Please feel free to discuss this with your radiologist.

6. WHAT ARE THE RISKS?

Your treating interventional radiologist is a highly trained specialist doctor who is experienced with minimising the risks for this procedure. However, there are some possible risks:

- Inadvertent delivery of SIRT to the stomach or pancreas may cause abdominal pain and nausea, acute pancreatitis, or peptic ulceration (stomach ulcer).
- High levels of implanted radiation and/or excessive shunting of SIR-Spheres to the lung may lead to radiation pneumonitis (too much radiation to the lungs). Shunting to the lungs may occur in rare circumstances with liver cancer patients. Shunting to the lungs is caused by an excessive pressure

build up in the blood in the liver. This pressure build up is caused by the increased amount of blood that is flowing from your liver arteries to supply the liver tumours. Occasionally this pressure becomes so great that this blood is ‘shunted’ or moved from the liver to the lungs. This may result in a dry cough in the lungs.

- Excessive radiation to the normal liver may result in radiation hepatitis (too much radiation to the liver). Patients who are considered at risk of this would not be recommended to undergo SIRT due to the poor liver function of the patient because of their liver tumours.
- Inadvertent delivery of SIR-Spheres to the gall bladder may result in inflammation of the gall bladder.

7. WHAT ARE THE BENEFITS?

- Combining SIRT to standard chemotherapies provides greater survival benefit than just using chemotherapy alone.
- Survival benefit has been demonstrated in patients whose cancer has not responded to all forms of chemotherapy and then received SIRT as a sole treatment.
- Reducing the sizes of tumours.
- Reducing tumour sizes to the point that liver surgeons can remove the tumour from the liver.
- Improving quality of life for the patient.
- Allowing some patients to have a liver transplant.

8. HOW LONG DOES IT TAKE TO RESPOND TO THE PROCEDURE?

After SIRT your doctor may assess the results of your treatment in a number of ways including the following:

Computed Tomography (CT) scan

A CT scan is a radiology image of the liver where the tumours can be seen. Prior to your SIRT you will have a CT scan. This initial scan is done before your SIRT and is sometimes known as a “baseline” scan and is used to compare with scans taken after SIRT. This follow up scan can then be used by your doctor to see if your tumours have reduced in size since the treatment. The follow up CT scan is normally done from 4 weeks up to 3 months after your treatment.

Positron Emission Tomography (PET) scan

A PET scan is another type of scan that is sometimes used by your doctor to determine your response to SIRT. If your doctor determines that you require this scan you will have a scan before your treatment and another scan following your SIRT.

Tumour markers

Your doctor may wish to follow up your response to SIRT by looking at certain tumour breakdown products also called “markers” in your blood. A tumour marker is a substance found in the blood which may be elevated or higher in cancer. As SIRT acts to destroy the liver tumours, your doctor may take a blood sample before your SIRT and another blood sample after your treatment to evaluate whether there has been a reduction in the marker over time. Your doctor will monitor one or more of these markers.