

*If you have
any questions
or concerns,
please ask your
physician or
nurse.*

Yttrium-90 Treatment

Yttrium-90 (Y-90) uses radioactive beads to treat liver cancer. These tiny beads, or microspheres, are placed into the tumor. The beads emit high radiation directly to the tumor to shrink it.

This treatment is done as an outpatient in the Interventional Radiology (IR) department by a specially trained radiologist. The treatment consists of several visits, which include:

- Planning session with an angiogram and CT/MRI and PET scans (6 to 8 hours)
- Y-90 treatment angiogram to one lobe of the liver 1 to 2 weeks after the planning visit (4 to 6 hours)
- Follow-up phone call 2 weeks after treatment
- Repeat CT/MRI and PET scans if needed, and blood tests 4 weeks after treatment
- Return office visit with the interventional radiologist 1 month after your treatment

During an angiogram, a long, flexible tube (catheter) is inserted into the femoral artery in the groin. Guided by X-ray, the physician threads the catheter through your blood vessel into your liver. This procedure is done:

- To map out the blood supply to the tumor and plan bead placement
- During the actual treatment to place the radioactive beads inside the tumor

The planning scans are done to confirm that Y-90 is a treatment option for you.

Benefits and risks

Direct treatment into the cancer site limits radiation to other parts of the body. This lessens the side effects. The most frequently reported side effect of Y-90 is fatigue. Some patients also have had mild abdominal pain, nausea and fever. Vomiting is rare. Y-90 is active in the body for about 10 days. All side effects should subside by the end of 10 days.

As needed, medicine may be given to help combat the fatigue and protect your stomach.

There is some risk with every medical procedure. The physician will discuss in detail the benefits and risks related to Y-90 treatment.

Planning session

Before the procedure

Do not eat solid food for at least 6 hours before the procedure. You may have clear liquids early in the morning on the day of the test. Needed medicines may be taken with sips of water.

Please come to the Feinberg Pavilion, 251 East Huron Street, 4th floor, Interventional Radiology department 1 hour before your procedure time.

Parking is available for patients and visitors in the garage at 222 East Huron Street, across from the Feinberg and Galter pavilions. For discounted rates, please bring your parking ticket with you. Tickets can be validated at the Customer Services Desks on the 1st and 2nd floor of the Feinberg and Galter pavilions and the 1st floor of Prentice Women's Hospital (including the Prentice 24-hour desk near the Superior Street entrance).

Be sure to bring:

- A list of allergies
- A list of all your current medications (prescription, over-the-counter and herbals)
- Photo ID
- Medical insurance information and card
- Medicare card (Medicare patients only)

Please leave all valuables such as jewelry, credit cards and money at home. It is important to arrange to have a responsible adult take you home. Medicine given during the procedure will make you drowsy. Family members may wish to bring a magazine or book to read during the extended wait time. They may leave the hospital and return at a later time to pick you up. We do ask for a cell phone or a contact phone number in the event that we need to reach a family member.

After you check in with the receptionist on the 4th floor, you and one member of your family will meet with staff who will review your health history and medications. A short physical exam will be done. After reviewing the procedure and asking any questions you may have, you will be asked to sign a consent form.

Once you change into a hospital gown, an IV (into the vein) line is placed in your arm or hand. This provides fluids and needed medicine. A tube also may be placed into your bladder to drain your urine. (This is removed before you go home.)

During the procedure

In the radiology department, the nurse will help you onto a procedure table. You will be connected to heart and blood pressure monitors. Medicine is given through an IV to relax you. Your groin area is shaved and washed with a special soap, and covered with sterile sheets. Numbing medicine is injected into the area. You will feel some burning as the medicine is given, but once it takes effect, the area will be numb. A small needle is inserted in the groin. Through this needle, a very small catheter is threaded into the femoral artery to the liver. You may feel pressure, but you should not feel any pain.

Once the catheter is in place, contrast dye will be injected to enable the physician to see the arteries. You may feel a sudden flushing or warmth. This lasts only a few seconds.

We will be performing 3 important steps during the angiogram:

- The physician will map your liver anatomy. This allows us to identify any arteries that may be feeding your tumor.
- Next the physician looks for any small arteries that go to your stomach or intestines. If these arteries are close to the radiation site, small coils are inserted to block the blood supply. This prevents any of the radiation beads from getting into your stomach or intestines and causing an ulcer. (Other blood vessels take over the work of those vessels that are blocked.) Not every patient needs this portion of the procedure.
- Macro aggregated albumen (MAA) beads are then injected into your liver. These beads are the same size as the Y-90 spheres, and they contain a radioactive tracer so we know where they go. This is an important step in your therapy. We want to be sure the beads stay in your liver, and do not travel to other organs and cause any problems. The MAA beads are harmless proteins that break down on their own, and are excreted through your stool and urine within 24 hours.

After the MAA has been injected, the catheter is removed. The wound is closed with a suture (that does not need to be removed). You will lay at a slight incline in bed for 2 hours.

If a suture is not used, firm pressure will be held over the puncture site for 15 minutes, after which you will lie flat in bed with your leg extended for 6 hours.

After the procedure

The nurse will then take you to the Nuclear Medicine Department. There, a scan is done to trace the location of the MAA beads. During the scan:

- You will lie on a firm table with your arms above your head.
- The nurse will monitor your condition and make sure you are comfortable. Pain medicine may be given as needed.

The scan takes about 1 hour.

After the scan, you will return to the holding room in Interventional Radiology, where a family member may join you. Your urine catheter and IV will be removed, and your wound checked for bleeding. Before going home, the nurse will assist you out of bed and help you to walk.

A nurse will confirm your appointment date for your Y-90 treatment. Unless you hear from us, you can assume that your scan was normal and plan to proceed with your treatment.

At home

Diet

You may resume your regular diet after discharge. You should drink at least 6 glasses of water (8 ounces each) over the next 24 hours. Water helps to clear the dye used during the procedure.

Activity

On the day you leave the hospital, limit your activities. Do not do physical exercise or heavy lifting (greater than 10 pounds) for the next 3 days. Do not drive for 24 hours after the procedure. You may resume all other daily activities 24 hours after the test.

Wound site/bleeding

A small bruise or even a marble-sized lump may be present. If you notice any bleeding from the puncture wound, lie flat and apply firm pressure just above the puncture site. Hold pressure for 15 minutes. If possible, have another person apply pressure. You should lie flat for about 1 hour before getting up and walking. Notify your physician if this happens. If bleeding persists for more than 15 minutes, you should be taken to the nearest emergency room for evaluation.

Call the Interventional Radiology Department right away at 312.926.5200 if you notice any of the following:

- Swelling or bleeding at the puncture site
- Fever higher than 101 degrees F
- Redness at the puncture site, or increasing tenderness or discharge at the puncture site

Y-90 microsphere treatment

On the day of the treatment, only an angiogram is done—no scans. The total time in the hospital is about 4 to 6 hours, but you will need to arrive 1 1/2 hours before your appointment.

Before the procedure

As before, do not eat solid food for at least 6 hours before the test. You may have clear liquids early in the morning of the test. Needed medications may be taken with sips of water.

Please come to the Feinberg Pavilion, 4th floor, Interventional Radiology 1 1/2 hours before your procedure.

Parking is available for patients and visitors in the garage at 222 East Huron Street, across from the Feinberg and Galter pavilions. For discounted rates, please bring your parking ticket with you. Tickets can be validated at the Customer Services Desks on the 1st and 2nd floor of the Feinberg and Galter pavilions and the 1st floor of Prentice Women's Hospital (including the Prentice 24-hour desk near the Superior Street entrance).

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After you check in with the receptionist on the 4th floor, you and one member of your family will come to a holding room. Your health history and medications are reviewed. A short physical exam is done. After reviewing the procedure and answering your questions, you are asked to sign a consent form.

You change into a hospital gown. Then an IV line is placed in your arm or hand. This provides fluids and needed medication.

During the procedure

Once you are taken into the procedure room, a nurse will give you medicine to relax you. We then will perform the angiogram just as we did on the pre-planning day. Using the groin site, the catheter will be inserted and Y-90 filled beads will be placed in the liver tumor. The catheter will be removed and the wound will be closed. The total time in the procedure room is 1 1/2 hours. The angiogram itself takes about 45 minutes.

After the procedure

Following the procedure, you will return to the holding room to recover for about 2 hours.

Before you go home, the nurse will check your groin site and remove the IV. The nurse also will review your discharge instructions and provide:

- A schedule of follow-up appointments
- Written orders for needed follow-up scans and blood work
- Emergency contact phone numbers
- Medication prescriptions

Please keep these in a safe place, as you will need to bring them with you at your 1-month appointment.

At home

Follow the same post-angiogram diet, activity and wound care guidelines discussed earlier on page 4. Take prescribed medicines as directed. For some this may include:

- Medicine to help protect stomach upset
- An antibiotic

Be sure to call the Interventional Radiology Department immediately at 312.926.5200 if you notice any of the following:

- Swelling or bleeding at the puncture site
- Fever higher than 101 degrees F
- Redness at the puncture site, or increasing tenderness or discharge at the puncture site

Follow-up care

In 2 weeks, an IR staff member will call to see how you are feeling.

At 4 weeks, all patients have blood tests. If needed, repeat CT/MRI and PET scans may be done at Northwestern Memorial Hospital.

You then will have a 1-month office visit with the radiologist to review your scans and blood work. At that time, it will be decided if a second Y-90 treatment is needed. To provide safe care, we are able to treat only one lobe of the liver at a time with Y-90. Therefore, if you have tumors in both lobes of your liver, you may need a second treatment.

Northwestern Medicine – Health Information Resources

For more information, contact Northwestern Memorial Hospital's Alberto Culver Health Learning Center (HLC) at hlc@nm.org, or by calling 312.926.5465. Health information professionals can help you find the information you need and provide you with personal support at no charge.

For more information about Northwestern Medicine, please visit our website at nm.org.

Para asistencia en español, por favor llamar al Departamento de Representantes para Pacientes al 312.926.3112.

The entities that come together as Northwestern Medicine are committed to representing the communities we serve, fostering a culture of inclusion, delivering culturally competent care, providing access to treatment and programs in a nondiscriminatory manner and eliminating healthcare disparities. For questions, please call either Northwestern Memorial Hospital's Patient Representatives Department at 312.926.3112, TDD/TTY 312.926.6363 or the Northwestern Medical Group Patient Representatives Department at 312.695.1100, TDD/TTY 312.926.6363.

Developed by: NMH Interventional Radiology with the Robert H. Lurie Cancer Center