

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

Chemoembolization

Chemoembolization is a treatment for patients with liver cancer tumors. The procedure is done in the Interventional Radiology (IR) Department by a specialized physician. Guided by X-ray, the treatment affects the tumor in 2 ways. First, chemotherapy medication is injected directly into the blood supply of the tumor using an IV (into the vein) line. This gives the medications more time and contact with the tumor to work and destroy the cancer cells. Second, a blocking agent (embolizer) stops the blood supply to the tumors. Combining the chemotherapy medication with an embolizer has a more powerful effect than if either were given alone. The procedure involves a 1- to 2-day hospital stay.

Benefits and risks

Injecting the chemotherapy medication directly into the cancer site lessens the side effects, because only a small amount of the medicine enters the bloodstream. There is always some risk with any medical procedure. Most of the risks of chemoembolization are related to the effect on the liver itself.

After the procedure, some patients may have:

- Fever (short-term)
- Nausea/vomiting
- Liver damage
- Fatigue
- Liver infection
- Jaundice (yellowish skin)
- Upper right abdominal pain

These effects vary for every patient. Medications can be given to help prevent or relieve most of these side effects.

Before the procedure

You will have blood tests to check that your liver is working properly. Before the procedure, your physician will discuss the benefits and risks of this treatment. You will also receive specific instructions about where and when to register for the procedure.

At home on the day of procedure

Do not eat solid food, milk or dairy products for at least 6 hours before the procedure. You may have clear liquids up to 3 hours before the procedure. For example, you can drink water or black coffee with nothing added (no cream, milk or sugar).

If you take any routine medications, speak with your physician. You can usually take these with sips of water.

Day of the procedure

What to bring to the hospital

Be sure to bring:

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

Please leave all valuables (jewelry, credit cards, money) at home. This includes any body piercing jewelry and tongue studs. You may not wear any jewelry during the procedure.

Arrival

Come to the IR Department on the 4th floor of Feinberg Pavilion, 251 East Huron Street, Chicago, 1 hour before your procedure. Parking is available in the garage at 222 East Huron Street, across from Feinberg and Galter pavilions. For a discounted rate, please bring your parking ticket with you. Your ticket can be validated at the IR check-in desk, at the Customer Services Desks on the 1st and 2nd floor of Feinberg and Galter pavilions, as well as on the 1st floor of Prentice Women's Hospital.

After you check in with the receptionist on the 4th floor, you will meet with staff who will bring you to the pre-procedure area. Here they will review your health history, medications and allergies. You will be given a hospital gown to wear. Please remove all clothing, including your underwear, pajamas or robe. Remove your glasses, any hairpins and all jewelry (including your watch). If you will be receiving general anesthesia, you will also be asked to remove your dentures or bridgework. Please give all valuable items to your family or leave them at home. You will also be asked to empty your bladder. A short physical exam will be done. The nurse will check your temperature, pulse, respirations and blood pressure and answer any questions you may have. An IV will be placed into your arm or hand so you can receive fluids and medications during the procedure.

The physician from the IR Department will explain the procedure and discuss the risks involved. After the physician has answered your questions, you will be asked to give your written consent for the procedure. Before the procedure, the physician will do a brief exam and ask you questions about your medical history.

Please tell the physician about any allergies or if you have ever had an unusual reaction to iodine or contrast solution.

If you are having this procedure while you are a patient in the hospital

The procedure may not be scheduled for an exact time. We will tell you as soon as the IR Department calls for you. When the patient escort arrives, you will be helped onto a cart, given a blanket to keep warm and taken to the IR Department.

During the procedure

When the procedure is about to start, you will be helped onto the procedure table. You will be connected to heart, blood pressure and oxygen monitors. The nurse may give you some medication through your IV to help you relax. This medication will make you feel drowsy, but comfortable during the procedure.

In some cases, general anesthesia may be used. This will begin with IV medication and will include anesthetic gases mixed with oxygen. A breathing tube will be placed into your windpipe to help you breathe during the procedure.

The physician will select the site to puncture the skin. The femoral artery in the groin is most often used. Other sites, such as the brachial artery or the radial artery in your arm, may also be used. The area around the puncture site will be shaved and cleansed with a special antiseptic. A local anesthetic (similar to novocaine) will be used to numb the area. When the area is numb, the physician will make a small puncture and insert a catheter. This catheter is a long, thin, flexible tube that will be guided to the area of treatment. The catheter placement is not usually painful. You may feel pressure and mild discomfort at the puncture site. If needed, added injections of local anesthetic will be given.

When the catheter is in the proper position, the contrast solution will be injected into the catheter and carried through the blood vessels. As the contrast is injected, you may feel a sudden warm or hot sensation. This will only last a few seconds. Once the contrast is injected, a series of X-ray images will be taken to see the liver's blood supply. You may be asked to hold your breath for a few seconds as the images are taken. Once the blood supply of the tumor is found, the chemoembolization material will be injected into the catheter. The procedure time varies, but usually takes 1 to 2 hours. Your blood pressure, pulse and oxygen levels will be monitored closely during and after the procedure.

When all images have been taken and the chemoembolization material has been given, the catheter will be removed. A closure device may be used to seal the puncture site. In some instances, firm pressure will be placed over the puncture site for at least 10 to 15 minutes to seal the puncture site. This will complete the procedure.

After the procedure

You will be asked to remain still for 2 to 6 hours. It is very important to keep your arm or leg that was used to insert the catheter straight. If the femoral artery in the groin was used, you will need to lie flat in bed. This prevents bleeding and allows the puncture site to heal. During this period, you must use a urinal or bedpan if you need to use the restroom. The nurse will assist you if needed.

The nurse will frequently check your blood pressure, temperature and pulse, along with the puncture site and pulse in the leg or arm used for the procedure. An ice pack may be placed over the puncture site to prevent swelling and relieve discomfort.

Do not eat solid foods until you have the physician's permission. You may begin to eat regular meals and raise the head of the bed 30 degrees after the recovery period is over. During the first 12 hours, it is best to slowly increase your fluid and food intake. You should drink plenty of liquids. You may receive fluids through your IV if needed. This will help to flush out the contrast used during the procedure.

Nausea also may occur. You can receive medication to relieve the nausea, so be sure to tell your nurse. After 2 to 6 hours, you will be encouraged to get out of bed and walk.

You may receive pain medication through your IV for the first several hours. When you can eat, you may switch to pain pills. You will have blood tests to see how your liver is tolerating the treatment.

Tell the nurse right away if you notice any of the following symptoms.

- Pain or swelling at the puncture site
- Bleeding or bruising at the puncture site
- Numbness, tingling, pain or any change in normal sensation in your arm or leg
- Coolness or discoloration of your hand or foot
- Changes in vision
- Difficulty speaking or slurred speech
- Difficulty moving your fingers, hands, feet or legs

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

Additional instructions

Diet

Unless instructed otherwise, you may resume your regular diet when you leave the hospital. You should drink at least 6 glasses of water (8 ounces each) over the next 24 hours. Water helps clear the dye used during the procedure from your body. **Do not drink alcohol for 24 hours.**

Medication

Take your antibiotics as directed.

It is normal to have some discomfort. Take your pain medicine as directed. If it does not control your discomfort, contact your physician.

Activity

Complete recovery usually takes 1 to 2 weeks. Follow these instructions when you get home:

- Check your temperature 2 times a day for 5 days.
- Do not drive for 24 hours after the procedure.

- For the next 3 days, do not do physical exercise or lift anything heavier than 10 pounds. Ask your physician before resuming strenuous physical activity.
- You may shower 24 hours after the procedure, but do not let water directly hit the puncture site. Do not scrub the area.
- Do not take a tub bath for 7 days.
- You may resume all other daily activities the day after you leave the hospital. This includes normal social activities.

Wound site/bleeding

A small bruise may be present. If you notice any bleeding from the puncture site, please do the following:

- **Immediately lie flat.**
- **Apply firm pressure over the site for 15 minutes. You may use a clean cloth or tissue to apply pressure. If possible, have another person apply pressure.**
- **After 15 minutes, slowly remove pressure. The wound should be dry and flat without bleeding. Cover the wound with an adhesive bandage.**
- **Call your physician right away.**

The following signs could indicate that the puncture of the artery has reopened and that there is active bleeding from the artery:

- Sudden increase in swelling of the area around the puncture site
- Blood streaming from the site that will not stop

If the bleeding and/or swelling continues as you keep applying pressure, it is considered a medical emergency!

- **Continue to apply firm pressure over the puncture wound**
- **Call 911**

Call your physician if you have any of the following symptoms:

- Temperature more than 101.5 degrees F for more than 1 day
- Pain or cramping in your abdomen not relieved by pain medication
- Severe nausea or vomiting that does not go away
- Bleeding or drainage oozing from the puncture site
- Swelling at the puncture site
- Increasing size of the bruise with discoloration extending past the initial puncture site
- Numbness or tingling in your arm or leg
- Difficulty moving your fingers, toes, feet or legs
- Discoloration and/or coolness of your hand or foot

Follow-up care

Before your discharge from the hospital, we will schedule an appointment with your oncologist, as well as a blood test to check your liver function in 2 to 4 weeks.