

Angiography: Chemoembolization

What to expect and how to prepare

This handout explains chemoembolization, a treatment for cancer.

What is chemoembolization?

Chemoembolization is a treatment for cancer. It works against tumors in 2 ways:

- It puts a large dose of chemotherapy drugs right into the tumor.
- It blocks (*embolizes*) the blood supply to the tumor.

Blood carries the oxygen and nutrients to the tumor and helps it grow. When we limit the blood supply, tumor growth will slow.

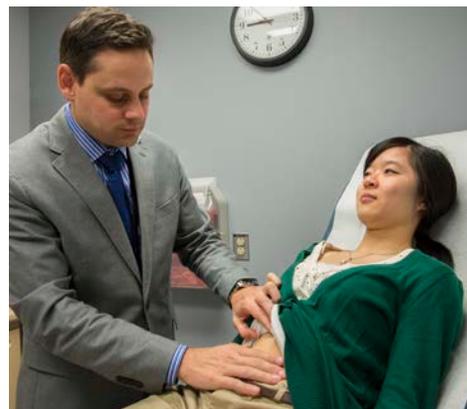
When is it used?

Chemoembolization is most often used to treat people who have liver cancer. It is also used to treat cancer that started in another area of the body but has spread to the liver (*metastasized*).

How will the treatment affect my liver?

Blood reaches the liver through both an artery and a large vein. Healthy liver tissue and liver tumors get their blood in different ways:

- Healthy liver tissue gets most of its blood from the vein. It gets a much less blood from the artery.
- A liver tumor gets most of its blood supply from the artery. It gets almost no blood from the vein.



Talk with your doctor if you have any questions about your treatment.

This is why chemotherapy injected into the liver artery affects the tumor and not healthy liver tissue.

Can chemoembolization cure liver cancer?

A full cure with chemoembolization is rare, but it sometimes occurs. Chemoembolization might be the only treatment you receive. Or, it may

be used with other treatments such as surgery or radiation. Your treatment plan will depend on the number and type of tumors you have.

The main goal of chemoembolization is to reduce the size of liver tumors. This can lessen or get rid of symptoms. It may also improve your chance of being chosen for a liver transplant.

How is it done?

Your doctor will use X-rays to help guide a small tube (*catheter*) into an artery in your groin. The catheter tip is then moved into the artery that supplies blood to the liver tumor.

Chemotherapy drugs are mixed with a material that will block the flow of blood. This solution is sent through the catheter into the tumor.

What drugs are used?

Your doctor will choose the chemotherapy drugs you receive based on the type of tumor being treated:

- For *hepatocellular carcinoma* (HCC), we often use a drug called doxorubicin. HCC is liver cancer that forms in the liver, not cancer that has metastasized to the liver.
- For other cancer tumors, we use a mixture of 3 drugs: doxorubicin, mitomycin, and cisplatin.

Do the drugs have side effects?

The drugs used in chemoembolization are absorbed into your body very slowly. This lessens, but does not get rid of, the short-term side effects that people often have with chemotherapy.

The most common side effects after chemoembolization are nausea and fatigue. Nausea is more likely to occur when the mixture of 3 drugs is used. More severe side effects are rare, but they may occur:

- **Doxorubicin** in large doses can damage the heart. We advise that a patient receive no more than about 500 mg of doxorubicin over their lifetime. Each round of chemotherapy uses 50 mg.
- **Mitomycin** can make your fingers and toes tingle or feel numb. It can also cause weakness and fatigue. In some people, it causes short-term hair loss or hair thinning. It can also affect how well your kidneys work.
- **Cisplatin** can cause ringing in the ears, hearing problems, and balance problems. It can also lower the production of some types of blood cells for a short time. This can increase your risk of bleeding and infection.

Your doctor can tell you more about these side effects. Be sure to ask all your questions and talk about any concerns with your doctor.

How do I prepare for the procedure?

First, you will meet with an *interventional radiologist* (IR). This doctor specializes in using imaging and guided minimally invasive methods to diagnose and treat various conditions. At this visit:

- You will have blood drawn. The results of your blood tests will help us understand how your liver and kidneys are working. The tests will also tell the IR if your blood is clotting normally.
- If you have a history of heart disease, you will also have a heart scan.

After this visit, your IR will tell you if you need to make changes in the medicines you are taking. Be sure to tell your IR what medicines, herbs, and supplements you take regularly. Your IR will need to know if you are taking anything that could affect your blood's ability to clot. This includes medicines such as Coumadin (warfarin), Plavix, and aspirin, and herbs such as ginkgo biloba, licorice root, or turmeric.

Before Your Procedure

- **Interpreter services.** If you do not understand English well enough to understand these instructions or the details of the procedure, tell us right away. We will arrange for a hospital interpreter to help you. This service is free.

A family member or friend may not interpret for you.

- **Allergies.** If you have a history of allergy or a bad reaction to contrast or iodine, please call our Interventional Radiology care coordinator at the number on the last page of this handout. You may need medicine for this allergy before the procedure.
- **Blood-thinning medicines.** If you take a blood thinner such as Lovenox, Coumadin, or Plavix, you may need to stop taking it for 2 to 7 days before the procedure. The length of time depends on which medicine you are taking. If you have not been told what to do, talk with your primary care provider (PCP) or the clinic that prescribed your medicine. Tell them you are having this procedure and ask when to stop taking your blood-thinning medicine.

IMPORTANT: If you have ever had a heart stent, a prosthetic heart valve, a *pulmonary embolism* (PE), or have *atrial fibrillation* with a history of a stroke, you **must** talk with the provider who prescribes your blood thinner. Ask how to change your dose before your procedure.

- **Changes to diabetes medicines.** If you have diabetes and take insulin or oral diabetes medicines, we will give you instructions about holding or adjusting your dose for the day of the procedure.

- Make plans for a responsible adult to drive you home after your procedure and stay with you the rest of the day. **You may NOT drive yourself home or take a bus, taxi, or shuttle by yourself.** If you need to take a bus, taxi, or shuttle, the responsible adult **must** ride with you.
- **Arrival time.** If you are an *outpatient* (not staying in the hospital), a nurse coordinator will call you one or more days before your procedure. The nurse will:
 - Tell you when to arrive at the hospital
 - Give you reminders about what to do on the morning of your procedure
 - Answer any questions you have

What will I feel during the procedure?

During the procedure, you may be given a *sedative* (medicine to help you relax) through an *intravenous* (IV) tube in your arm. You will stay awake, but feel sleepy. This is called *conscious sedation*. You will still be sleepy for a while after the procedure.

Conscious sedation may not be a safe option for you if you have certain health conditions. Tell us **right away** if you:

- Have needed anesthesia for basic procedures in the past
- Have *sleep apnea* or chronic breathing problems (you might use a CPAP or BiPAP device while sleeping)
- Use high doses of an opioid pain medicine
- Have severe heart, lung, or kidney disease
- Cannot lie flat on your back for at least 1 hour because of back or breathing problems
- Have a hard time lying still during medical procedures
- Weigh more than 300 pounds (136 kilograms)

Talk with the providers in Radiology about the type of medicine that will be used for your procedure. You may receive:

- Conscious sedation, as described above
- Only a local *anesthetic* (numbing medicine), such as lidocaine
- A local anesthetic and a single pain or anxiety medicine (this is called *minimal sedation*)
- *General anesthesia* (medicine to make you sleep), given by an *anesthesiologist*

Day Before Your Procedure

- Eat as usual on the day before your procedure.

Procedure Day

At Home

- Take all of your other usual medicines on the day of the procedure. Do **not** skip them unless your doctor or nurse tells you to.
- Starting **6 hours** before your procedure, **stop eating solid foods**. You may only have *clear liquids* (liquid you can see through), such as water, broth, cranberry juice, or weak tea.
- Starting **2 hours** before your procedure, take **nothing** at all by mouth.
 - If you must take medicines, take them with **only** a sip of water.
 - Do **not** take vitamins or other supplements. They can upset an empty stomach.
- Bring with you a list of all the medicines you take.
- Plan to spend most of the day in the hospital. If there is a delay in getting your procedure started, it is usually because we need to treat other people with unexpected and urgent problems. Thank you for your patience if this occurs.

At the Hospital

- Check in at **Admitting** on the 3rd floor (main level) of the hospital. Admitting is near the lobby, to the right and behind the Information Desk.
- You may have also been given instructions to go to the **Outpatient Lab** for a blood draw. The lab is behind the Cascade elevators, next to Outpatient Pharmacy. You can go to the lab either before or after you check in at Admitting.
- After you have checked in and had your blood drawn, take the Pacific elevators to the 2nd floor. Check in at the Radiology reception desk.
- A staff member will:
 - Take you to a pre-procedure area
 - Give you a hospital gown to put on
 - Give you a bag for your belongings
- While you are in the pre-procedure area:
 - Your family or a friend can be with you.
 - A nurse will ask you some health questions, take your vital signs (such as heart rate), place an *intravenous* (IV) tube in your arm, and go over what to expect.

- A radiologist or physician assistant will talk with you about the procedure. They will ask you to sign a consent form, if you have not already signed one.
- You will be able to ask any questions you have.

Your Procedure

- The nurse will take you to the Radiology suite. This nurse will be with you for the entire procedure.
- You will lie flat on your back on an exam table.
- X-rays will be taken during the procedure to help your doctor see your liver and the tumor(s).
- We will use these devices to monitor you during the procedure:
 - **Wires** on your chest will help us watch your heart
 - A **cuff** around your arm will let us check your blood pressure
 - **Prongs** in your nose will give you oxygen and a **probe** on one of your fingers will show us how well your body is using the oxygen
- The entire medical team will ask you to confirm your name, go over your allergies, and explain what we plan to do. This is for your safety. We do this for every procedure and every patient.
- A radiology technologist will clean your skin around your abdominal area with a special soap. The technologist may need to shave some hair from the area where the doctor will be working.
- Next, your nurse will give you the sedative to make you feel drowsy and relaxed before we begin.
- If needed, an interpreter will be in the room or will be able to talk with you and hear you through an intercom.
- Before the catheter is inserted into your abdomen, the doctor will inject a local *anesthetic* (numbing medicine). You will feel a sting for about 10 to 15 seconds. After that, the area should be numb and you should feel only minor discomfort.
- It is normal to feel pressure or slight pain at the site that is being treated. Please tell your nurse if you feel pain.
- Your doctor will guide a small catheter into an artery in your groin. The tip will be moved into the artery that supplies blood to the tumor.
- Chemotherapy material will then be sent through the catheter into the tumor. The catheter is then removed.
- Pressure will be applied to the insertion site for 15 to 20 minutes. A tight bandage will then be placed over the site.

After Your Procedure

- We will watch you closely for a short time in the Radiology department.
- If you are an *outpatient* (not staying in the hospital), you will then go to a short-stay unit in the hospital. A different nurse will monitor you there.
- Most times, you will be able to eat and drink. Your family or a friend may visit you.
- You will be able to go home when you:
 - Are fully awake
 - Can eat
 - Can walk and use the restroom
- If a short-term suture or device was used, it is usually removed by this time.
- It is rare to have problems with this procedure. If problems occur, we may need to keep you in the hospital overnight so that we can watch you or treat you.
- Before you leave the hospital:
 - Your nurse will tell you what activities you can do, how to take care of your incision, and other important instructions.
 - You will receive prescriptions for pain and nausea medicines.

Side Effects

Most patients have some side effects after chemoembolization. Side effects include pain, nausea, and a low-grade fever. This is called *post-embolization syndrome*. You may have fevers for up to 1 week.

Pain is a common side effect. It occurs because there is no longer an oxygen-rich blood supply to the tumor. Lack of oxygen causes pain in any tissue. Most often, the pain of post-embolization syndrome can be treated with pain medicines you take by mouth.

Fatigue and loss of appetite are common for 2 weeks and may last longer. Most times, these are part of a normal recovery. Most patients can return to their normal activities within 1 week.

Follow-up

- You may need more than 1 session of chemoembolization. If so, you will wait about 1 month between each session. This wait time makes it easier on your liver.

- *Computed tomography* (CT) scans may be done the day after each chemoembolization. The scans will show where the chemotherapy material has collected in the liver.
- More CT scans will be done 3 months after the last treatment. These scans will show how much the tumors have shrunk. Most patients have CT scans or *magnetic resonance imaging* (MRI) every 3 to 6 months to check for any new liver tumors.
- Chemoembolization can be repeated many times over many years, as long as there is blood flow to your tumor(s), your liver is working well, and your health allows you to handle the procedure.

When to Call

Call us **right away** if:

- You have a lot of bleeding
- Your pain suddenly gets worse or changes in any other way
- You have a fever higher than 101°F (38.3°C) or chills
- You feel short of breath and it is getting worse
- You have new chest pain
- You feel dizzy
- You are vomiting
- You see any other changes that are unusual or cause you concern

Who to Call

Interventional Radiology care coordinator.....206.598.6897

Procedure scheduling206.598.6209

After hours (between 5 p.m. and 7 a.m.), and on weekends and holidays
Ask for the Interventional Radiology Fellow on call 206.598.6190

Urgent Care

If you need urgent care, go to the nearest Emergency Room or call 911 right away. Do not wait to talk with one of our staff.

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

UWMC Imaging Services:
 206.598.6200