

Transarterial Chemoembolization (TACE)

Know what to expect

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For questions about the TACE procedure, please call:

Niagara Health On call Interventional Radiologist
905-378-4647

For questions about chemotherapy and side-effects, please call:

Walker Family Cancer Centre (WFCC) - Monday to Friday, 8:30am-4:30pm
905-682-6451, press 2

CAREchart@Home (after-hours nursing phone line)
1-877-681-3057

What is TACE?

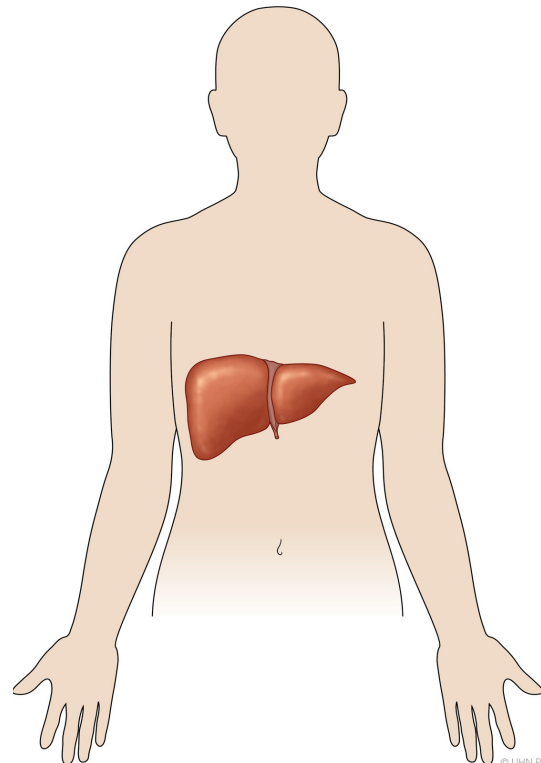
Transarterial Chemoembolization (TACE) is a way to treat liver cancer. It works by blocking the blood supply to the tumour (cancer). Once the blood supply is blocked (embolized), chemotherapy (drug therapy) is given right into the tumour (cancer).

Liver cancer has many names and may be called:

- hepatocellular carcinoma
- HCC
- hepatoma

You and your doctor have decided you should get TACE.

TACE is used to treat a liver cancer that cannot be treated with surgery, or by other treatments that try to cure it.



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TACE is a palliative treatment, which means it is not going to cure your cancer. TACE is used to control tumour growth and try to shrink the tumour. If you are waiting for a liver transplant, TACE can also be used as a “bridge” to try to control cancer while you are waiting for a new liver.

How does TACE work?

TACE attacks the cancer in 2 ways.

It combines:

- (1) chemotherapy (drug therapy), with
- (2) embolization, which is a way to block the blood vessels that supply the tumour. Both treatments done together are called **chemo-embolization**.

First, the chemotherapy drug is injected right into the blood vessels that supply the tumour. Second, the blood vessels that supply the tumour are blocked by a process called embolization. Blocking the blood vessels is meant to starve the tumour of the oxygen and nutrients that it needs to grow.

Your liver is unique in having two blood supplies: an artery (the hepatic artery) and a large vein (the portal vein). The normal liver gets about 75% of its blood from the portal vein and only 25% of its blood from the hepatic artery.

- When a tumour grows in your liver, it gets almost all of its blood supply from the hepatic artery.
- Chemotherapy drugs that go into the hepatic artery at the liver reach the tumour very quickly. This leaves most of the healthy liver tissue okay.
- When the artery is blocked, almost all of the blood supply is taken away from the tumour.
- The liver continues to get blood from the portal vein.

There are also other types of treatment your health care team may suggest getting instead of TACE, or along with TACE. These treatments can include:

- tumour ablation
- systemic therapy
- radiation treatment

What are the benefits of TACE?

In about 66% (66 out of 100 people) treated, TACE can stop liver tumours from growing or cause them to shrink. This benefit lasts for an average of 10 to 14 months, depending on the type of tumour. Treatment is often done again if the cancer starts to grow after this time.

When cancer stays only in the liver, most deaths that happen are due to liver failure. This is caused by tumour growth in the liver, and not caused by the spread of cancer around the body.

TACE can help prevent tumour growth. It can help keep the liver working well and give you a good quality of life.

What are the risks and side effects of TACE?

Like any treatment, there are risks and side effects of TACE. TACE has the risks and side effects of both chemotherapy and embolization. Most people feel some amount of:

- pain
- fever
- loss of appetite
- fatigue (feeling tired)

Your health care team can help you manage these side effects.

You will stay in the hospital during the procedure, and 2 to 4 days after. When you leave the hospital, you will feel tired and may have minor fevers for up to 4 weeks.

Side effects of embolization

Side effects can last for 3 to 4 weeks after embolization. You will likely start to feel them in the first hours or days after you get it.

Side effects usually only last a few days. They include:

- abdominal pain
- fever
- bloating (feelings of a full, or swollen stomach)
- nausea (feeling of having to throw up)

Side effects of chemotherapy

Patients who get TACE feel side effects from their chemotherapy. Most side effects of chemotherapy are delayed and may not appear until 1 or 2 weeks after your procedure. Some side effects can last for many weeks.

Side effects can include:

- low white blood cell count (can lead to an infection)
- low platelet count (can cause easy bruising or bleeding)
- mouth sores
- hair thinning or loss (usually happens 5 to 14 days after the procedure)

The side effects and changes in your body usually start to go away around 16 to 20 days after chemotherapy. But be aware that you could feel tired for up to 4 to 5 weeks.

Side effects of Doxorubicin (chemo drug)

Doxorubicin (chemotherapy drug) turns your urine (pee) a red colour for 1 to 2 days. Be careful that your urine does not stain your clothes. (This stain is NOT blood). Wash your hands carefully after using the bathroom. Below is a list of the symptoms (signs) that you may feel while taking doxorubicin (chemotherapy drug), and things you can do to help.

Common symptoms (signs)

Rise of temperature and other signs of infection (such as fever, chills, cough, burning and/or hard time peeing):

- Be sure to have a thermometer at home to track your temperature
- A fever is a temperature of 38.3 °C (100.9°F) or higher, OR a temperature of 38°C (100.4°F) for longer than 1 hour. Call the Walker Family Cancer Centre † 7## or after-hours nursing phone line if you have a fever.
- If you have a **fever** and are **feeling unwell** go the closest Emergency Department
- Avoid crowds to help prevent infection

Nausea and vomiting (throwing up)

- Take your anti-nausea medication
- If these medications don't work, call † 7## or after-hours nursing phone line for help

Pain the liver area

- Take your pain medications

Sores in the mouth

- Use a soft toothbrush and rinse often
- If sores are many or troublesome call † 7## (or after-hours nursing phone line) for advice

Low white blood cells

- Avoid crowds and keep track of your temperature

Common symptoms (signs) continued

6. Low platelet count
 - Do not use medications that contain Aspirin (ASA)
 - Monitor for signs of bleeding
7. Hair loss
 - Cover your head when in the cold. Many patients get attractive wigs

Less common symptoms (signs)

1. Diarrhea (watery, or loose poo)
 - Drink a lot of fluids and call WFCC or the after-hours nursing phone line if you are having diarrhea at two or more times your normal amount
2. Fast or irregular heartbeats
 - Go to the closest Emergency Department
3. Shortness of breath
 - Go to the closest Emergency Department
4. Mild swelling of feet
 - Let your doctor know at your next visit. If you are concerned contact WFCC or the after-hours nursing phone line for advice
5. Darkness or redness of the skin and nails
 - Let your doctor know at your next visit. If you are concerned, contact WFCC or the after-hours nursing phone line for advice
6. Easy bruising or bleeding
 - If bleeding does not stop, go to the closest Emergency Department
7. Black tar-like feces (poo)
 - Go to the closest Emergency Department
8. Skin rash or itching
 - If you are concerned, contact WFCC or the after-hours nursing phone line for advice

How to be safe after TACE

You need to pay close attention to your body around the time of 5 to 14 days after your procedure. Look for any sign of infection.

Go to the closest hospital Emergency Department if you have:

- a fever and are feeling unwell (Fever is a temperature of 38.3°C (100.9°F) and greater, OR 38°C (100.4°F) for longer than 1 hour)
- signs of infection
- chills or shakes
- burning when you pass urine (pee)
- cough with yellow or green sputum
- a wound that is red, hot or draining
- a sore throat
- frequent diarrhea (watery, or loose poo)

It is important that you go to the closest Emergency Department if you notice any of these, since you may need treatment right away. Tell them you have just had TACE. You can tell your doctor about your decision to go to the emergency department by calling WFCC.

Rare and serious side effects

Sometimes patients feel other rare but serious side effects. These can include:

- abscess (puss) build-up or liver failure
- an allergic response to the contrast dye used with CT scans
- embolization material getting stuck in the wrong place in the liver, blocking normal tissue of its blood supply
- kidney damage (for patients with diabetes or other prior kidney disease)

Serious complications (problems with the procedure) happen after about 1 out of every 20 procedures. About 1 out of every 100 procedures results in death, usually due to liver failure.

Your doctor will talk to you about these rare but possibly serious complications. Complications are related not only to the procedure itself, but also to a person's general health and their overall liver function. It is for this reason that great care is taken in choosing patients for this procedure.

How your health care team prepares for your TACE

A team of surgeons, liver specialists, interventional radiologists and a medical oncologist (cancer doctor) review all patients who might get TACE. As part of their review they will look at your health history. If you are suitable for TACE, the TACE Coordinator will tell you about your appointments.

Preparing for your TACE

The medical oncologist (cancer doctor) will decide the use and dose of the chemotherapy. They will discuss the risks and benefits with you. The interventional radiologist will do your procedure. They will discuss the actual procedure and its risks with you.

You will have a 2D echo (ultrasound of the heart) done. You will also have an ECG (test of the electrical activity of your heart) done. This will help to find out a baseline of your heart's function. This is done because doxorubicin (the chemotherapy drug being used) may affect your heart after many treatments.

You are not likely to have many treatments of doxorubicin, but we need to know if your heart is working well enough before using this drug.

You will need to do other things to prepare for TACE. You will need to:

- Do a CT scan of your abdomen and chest within 2 months of the procedure
- Meet with the medical oncologist (cancer doctor)
- Do blood work to find out how well your liver and kidneys are working, and whether your blood clots
- Meet with the interventional radiologist

You should report to your doctors all medications you are taking. This includes:

- prescription drugs
- over the counter drugs, including herbal medicines
- any allergies, especially to local anesthetic medications, general anesthesia or to contrast materials (**contrast dye** or **x-ray dye**)

Your doctor will advise you to stop taking aspirin, anti-inflammatory drugs or some blood thinners. If you are taking any of these medications please let your doctor know. They will need to give you instructions about when to stop them before the procedure.

If you are on injectable anticoagulants (blood thinners), tell your doctor. You need to discuss how to stop taking them with your doctor.

Whether you are at home or in hospital the night before the procedure, you must not eat or drink anything after midnight. This includes water.

You will be admitted to the hospital the night before or the morning of the procedure.

On the day of TACE, we will:

- ask you to change into a hospital gown
- start an intravenous (IV) infusion, given by a needle in your arm. This is how your body gets extra fluid and medication before, during or after your procedure
- give you an antibiotic to help prevent infection
- put you on a stretcher and transfer you to the Interventional Radiology Suite of the hospital, where your procedure will take place
- answer any questions you may have

What happens during TACE?

1. You are taken into the treatment room.
2. You are positioned on the exam table.
3. You are connected to monitors that track your heart rate, blood pressure and pulse during the procedure.
4. You are given medications to help prevent nausea (feeling of having to throw up) and pain.
5. Your groin or the left wrist joint is washed with a cleaning solution and you are covered with a clean drape.
6. A very small pin hole is made in the skin at the access site.
7. Directed by an x-ray, a thin catheter is put through the skin and into the femoral artery (large groin vessel) or the radial artery (vessel at the wrist joint), and moves into the liver.
8. A contrast dye is injected through the catheter, and another set of x-rays are taken. When the dye is given you feel a warm flush. It may feel as if you need to urinate (pee).

Once the catheter is put in the branches of the artery that are feeding the tumour, the anti-cancer drugs and embolic agents are mixed together and injected.

At the end of the procedure, the catheter is removed and pressure is applied to stop any bleeding. The opening in the skin is then covered with a bandage.

The procedure usually lasts 90 minutes. Once doctors believe you are stable, you are taken back to your room.

What happens after the procedure?

1. The nurses check the access site for bleeding and/or swelling.
2. Your vital signs (heart rate, blood pressure, breathing rate, temperature) are checked.
3. You stay in bed (without bending your treated side) for 8 hours.
4. Most patients feel some side effects including:
 - pain
 - nausea and vomiting (throwing up)
 - fever
5. Pain is the most common side effect because the blood supply to the treated area is cut off. It can be controlled by medications given by intravenous (IV) or by mouth.
6. You continue to get intravenous (IV) fluids and have your urine (pee) amount tracked.
7. The antibiotic started before the procedure continues for a few more doses to lower the risk of infection.

You are sent home with prescriptions for antibiotics, pain medication and medicine for nausea. It is normal for you to run a minor fever up to 1 week after the procedure. Fatigue (feeling tired) and loss of appetite are also common and may last 2 weeks or longer. In general, these are all signs of a normal recovery.
8. Each individual has a unique response. It is expected there will be a slow decrease in symptoms over time. Always remember to call WFCC or the after-hours nursing phone line, or go directly to closest Emergency Department with a fever 38.3°C (100.9°F) or greater, OR 38°C or (100.4°F) for 1 hour or longer. This is very important in the 5 to 14 days after the procedure.

Follow up

In the first or second week after your procedure, you will have blood tests done and see your Interventional Radiologist and Medical Oncologist (cancer doctor) to see how you are healing.

About 1-2 months after TACE you will return for a CT scan or MRI, and blood tests to find out the size of the treated tumour. Follow up over time will include being followed by an Oncologist or Hepatologist (liver specialist). One of them will provide ongoing care for your overall liver disease, as needed. They will meet with you every 3 months to monitor your liver tumour.

If you have a tumour on both sides of your liver

If there is a tumour on both sides of your liver, it is normal that only part of the liver will be treated during your first procedure. After about 1 to 2 months, you will return to the hospital for more TACE.

CT scans or MRI will be done every 3 months to find out how much the tumours shrink, and to see if and when any new tumours grow in the liver.

The average time before a second round of TACE is between 10 and 14 months. TACE can be done more over time, as long as it remains possible, and you remain healthy enough to go through procedures. For this reason your interventional radiologist may follow your case as well.

If you are waiting for a liver transplant

If you are a patient on a wait list for transplant, you will also continue to be followed by the surgeon from that team. The transplant surgeon will monitor your tumours and liver as you wait for this procedure.

This patient education resource was adapted from
UHN's Transarterial Chemoembolization (TACE) patient education booklet
https://www.uhn.ca/PatientsFamilies/Health_Information/Health_Topics/Documents/Transarterial_Chemoembolization_TACE.pdf (2019) for

Interventional Radiology, Interventional Oncology and the Walker Family Cancer Centre at Niagara Health
