

## Trastuzumab emtansine (Kadcyla)

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### 1. What is trastuzumab emtansine?

Trastuzumab emtansine is a targeted (biological) therapy. Its generic (non-branded name) is trastuzumab emtansine. You may hear it called Kadcyla, its brand name, or TDM1, its chemical name.

Trastuzumab emtansine is a combination of two drugs:

- Trastuzumab (Herceptin), which belongs to a group of drugs called targeted (biological) therapies. Targeted (biological) therapies block the growth and spread of cancer. They target and interfere with processes in the cells that help cancer grow
- Emtansine, which is a chemotherapy drug

### 2. Who might be offered trastuzumab emtansine?

#### After surgery in primary breast cancer

Primary breast cancer is breast cancer that hasn't spread beyond the breast or the lymph nodes under the arm.

Trastuzumab emtansine may be offered after surgery (known as adjuvant treatment) if you have HER2 positive primary breast cancer and cancer still remains in the breast or lymph nodes after you have had:

- Neoadjuvant (before surgery) treatment with docetaxel or paclitaxel chemotherapy
- And a HER2-targeted therapy (trastuzumab or pertuzumab)

## Secondary breast cancer or regional recurrence

You may be offered trastuzumab emtansine if you have HER2 positive secondary breast cancer or a regional recurrence (where surgery is not possible), and have already had trastuzumab and chemotherapy drugs (docetaxel or paclitaxel), either together or separately.

## 3. How does trastuzumab emtansine work?

Some breast cancer cells have a higher than normal level of a protein called HER2 on their surface. This stimulates the breast cancer cells to grow. This type of breast cancer is often referred to as HER2 positive.

There are various tests to measure HER2 levels which are done on breast tissue removed during a biopsy or surgery. If your cancer is found to be HER2 negative, then trastuzumab emtansine will not help you.

Trastuzumab attaches to the HER2 proteins (also called receptors) and can stop them growing. It also helps the body's immune system to destroy cancer cells.

When the trastuzumab attaches to the proteins, it delivers emtansine directly into the breast cancer cells. The emtansine can destroy the cancer cells but leave normal cells relatively unharmed which means there are usually fewer side effects.

## 4. How is trastuzumab emtansine given?

Trastuzumab emtansine is given intravenously (into a vein). This will usually be as an infusion (drip) either in the back of the hand or lower arm, although other intravenous methods may be used depending on factors such as how easy it is for your chemotherapy team to find suitable veins, and your preferences. For more information, [read about the different ways chemotherapy may be given](#).

You will have the first infusion over 90 minutes. You'll then be monitored for at least a further 90 minutes to make sure you don't have a bad

reaction to the treatment. If you don't have a bad reaction to your first infusion, your future infusions will usually be given over 30 minutes and you will be monitored for at least a further 30 minutes.

## **After surgery in primary breast cancer**

You'll have trastuzumab emtansine as an outpatient every three weeks for up to 14 cycles.

## **For secondary breast cancer or regional recurrence**

You'll have trastuzumab emtansine as an outpatient every three weeks for as long as your treatment team feels you're benefiting from the drug and you don't have any problems with it.

# **5. Common side effects of trastuzumab emtansine**

Like any drug, trastuzumab emtansine can cause side effects. Everyone reacts differently to drugs and some people have more side effects than others. These side effects can usually be managed and those described here will not affect everyone.

You should be given a 24-hour contact number or told who to contact if you feel unwell or you are concerned about side effects at any time during your treatment, including at night or at the weekend.

## **Effects on the blood**

Trastuzumab emtansine can temporarily affect the number of blood cells in the body.

You'll have regular blood tests to check your blood count. Blood is made up of red cells, white cells and platelets. If the number of blood cells is too low, your next cycle of treatment may be delayed or the dose of chemotherapy reduced.

## **Risk of infection**

Not having enough white blood cells can increase the risk of getting an infection.

**Contact your hospital immediately if you experience any of the following:**

- **A high temperature (over 37.5°C) or low temperature (under 36°C), or whatever your chemotherapy team has advised**
- **Suddenly feeling unwell, even with a normal temperature**
- **Symptoms of an infection, for example a sore throat, a cough, a need to pass urine frequently or feeling cold or shivery**

Before starting treatment you should be given a 24-hour contact number or told where to get emergency care by your treatment team. You may need antibiotics. Sometimes your doctor may recommend injections of drugs called growth factors to stimulate the production of white blood cells to reduce your risk of infection.

## **Anaemia**

Having too few red blood cells is called anaemia. If you feel particularly tired, breathless or dizzy, let your treatment team know.

## **Bruising and bleeding**

You may also bruise more easily, have nosebleeds or your gums may bleed when you brush your teeth. Tell your treatment team if you have any of these symptoms.

## **Fatigue (extreme tiredness)**

Cancer-related fatigue is extreme tiredness that doesn't go away with rest or sleep. It's a very common side effect of breast cancer treatment and may affect you physically and emotionally. If you think you have fatigue, tell your GP or treatment team so you can be fully assessed and offered advice on how to manage your energy levels.

Find out more about managing [fatigue](#).

## **Pain in the injection site**

Trastuzumab emtansine may leak outside of the vein while it is being given, this is called extravasation. Tell the nurse giving the chemotherapy immediately if you have pain, stinging or a burning sensation around the cannula (small plastic tube) while the drug is being given.

## **Sore mouth and taste changes**

Your mouth may become sore or dry and you may get ulcers. Good mouth hygiene is very important during treatment. You may be given mouthwash to reduce soreness of the mouth and gums and to try to stop mouth ulcers developing.

It's advisable to see your dentist for a check-up before your treatment begins. Check with your treatment team before having any dental work done.

Your taste can change and some food may taste different (for example more salty, bitter or metallic). It can be helpful to experiment with different types of food to find the ones you can eat.

## **Numbness and tingling in hands or feet**

Some people having trastuzumab emtansine experience numbness or tingling in their hands and feet. This is due to the effect of trastuzumab emtansine on the nerves and is known as peripheral neuropathy. In most cases it is mild and usually goes away soon after treatment stops. If it is severe it may be necessary to delay treatment or stop completely.

If you have numbness or tingling, mention this to your treatment team so that the symptoms can be monitored.

## **Difficulty sleeping**

For some people, trastuzumab emtansine can affect sleep. If you have difficulty sleeping (insomnia), some simple things like limiting caffeine in the afternoon and evening, keeping your room dark and quiet, and going to bed and getting up at the same time each day may help.

Relaxation exercises can also be helpful. There are CDs, podcasts and phone apps that can guide you through these techniques.

If your insomnia is persistent, your GP may prescribe something to help you sleep.

## **Nausea and vomiting**

You may experience nausea (feeling sick) and vomiting (being sick), but most people will not actually be sick. You'll be prescribed anti-sickness drugs to take home to reduce nausea or stop it happening. If you continue to feel sick or vomit, tell your treatment team as they may be able to change your anti-sickness drugs.

## **Diarrhoea or constipation**

You may have diarrhoea or constipation, your treatment team or GP can prescribe medicine to help control it. Contact your team if you have four or more episodes of diarrhoea within a 24-hour period.

## **Low levels of potassium in the blood**

You will have regular blood tests before and during treatment to check your potassium levels. If your potassium levels are low your treatment team may prescribe supplements. Potassium levels usually go back to normal when your treatment finishes.

## **Other common side effects**

Other common side effects of trastuzumab emtansine include:

- Headaches
- Shortness of breath and coughing
- Muscle or joint pain
- Eye problems (such as dry, sore or watery eyes)

Your treatment team will be able to advise on you how to manage these.

## **6. Less common side effects of trastuzumab emtansine**

### **Allergic reaction**

If you have an allergic reaction to trastuzumab emtansine, it's more likely to happen the first time you have the treatment. This is why your first treatment is given over 90 minutes. Before your treatment starts, you'll be given drugs to reduce the risk of an allergic reaction.

You'll be monitored closely during your treatment so that any reaction can be dealt with immediately. Symptoms include flushing, skin rash, itching, back pain, shortness of breath, faintness, fever or chills.

### **Heart changes**

Trastuzumab emtansine may cause heart changes by weakening the heart muscle. This is usually temporary, but for a small number of people it may be permanent. Before you start treatment your treatment team will arrange a heart (cardiac) function test to make sure your heart is working normally. This could be an echocardiogram (echo) or a multiple-gated acquisition (MUGA) test.

You may continue to have tests (usually an echocardiogram) every three months during treatment, and every six months for two years after your last dose of trastuzumab emtansine.

Contact your treatment team if you develop any breathlessness, chest pain, changes to your heartbeat or swollen ankles.

## **Skin changes**

You may get a rash and your skin may be itchy. Let your treatment team know if you have any skin changes as they can prescribe creams or tablets to help.

## **Hand-foot (Palmar plantar) syndrome**

You may develop soreness, redness and peeling on the palms of your hands and soles of your feet. This is known as Palmar-plantar or hand-foot syndrome, and may cause tingling, numbness, pain and dryness.

Keeping the feet and hands clean, dry and well moisturised can help.

If you experience skin reactions, mention this to your treatment team so that the symptoms can be managed.

## **Hair thinning**

You may notice your hair thins while having your treatment. However, it is unusual to lose your hair.

# **7. Rare side effects of trastuzumab emtansine**

## **Liver changes**

Trastuzumab emtansine can affect how the liver works. You will have blood tests to check your liver function while you're having treatment.

Sometimes treatment may need to be delayed or the dose reduced if the blood tests show any problems with your liver.

## **Dizziness and memory problems**

Trastuzumab emtansine can cause you to feel dizzy or to become forgetful. Let your treatment team know if you experience these symptoms.

## **Problems breathing (pneumonitis)**

Trastuzumab emtansine can cause breathing problems, called pneumonitis, you may also hear it called interstitial lung disease (ILD). Contact your treatment team if you experience shortness of breath and coughing.

## 8. Blood clots

People with breast cancer have a higher risk of blood clots. The risk is higher because of the cancer itself and some treatments for breast cancer. If the cancer has spread to other parts of the body (secondary breast cancer), this also increases the risk. Having trastuzumab emtansine increases the risk of blood clots such as a deep vein thrombosis (DVT).

People with a DVT are at risk of developing a pulmonary embolism. This is when part of the blood clot breaks away and travels to the lung.

Blood clots can be harmful but are treatable so it's important to report symptoms as soon as possible.

**If you experience any of the following symptoms contact your local A&E department, GP or treatment team straight away:**

- Pain, redness/discolouration, heat and swelling of the calf, leg or thigh
- Swelling, redness or tenderness where a central line is inserted to give chemotherapy, for example in the arm, chest area or up into the neck
- Shortness of breath
- Tightness in the chest
- Unexplained cough (may cough up blood)

Find out more about [blood clots](#).

## 9. Sex, contraception and pregnancy

You're advised not to become pregnant while you're having treatment because trastuzumab emtansine may have a harmful effect on a developing baby.

If you haven't been through the menopause, talk to your treatment team about the most suitable method of contraception for you. You should continue using contraception for at least seven months after your last dose of trastuzumab emtansine.

You can still have sex during treatment. It's not known if trastuzumab emtansine can pass into vaginal fluids or semen but this can't be completely ruled out as chemotherapy drugs can pass into the blood and some other body fluids. Most hospital specialists will advise using barrier methods of contraception, such as condoms during treatment, and for a few days after chemotherapy is given.

## 10. Fertility



The impact of trastuzumab emtansine on fertility is not currently known. It's important to discuss any fertility concerns with your treatment team before you begin your treatment.

For more information, see our [Fertility, pregnancy and breast cancer treatment](#) booklet.

## 11. Breastfeeding

Breastfeeding is not recommended while having trastuzumab emtansine or within seven months of the last dose. This is because there is a risk the drugs could be passed on through your breast milk.

## 12. Travel and vaccinations

### Travel and vaccinations

If you're planning a holiday or need to travel overseas, check with your treatment team first.

You shouldn't have any live vaccines while you're having chemotherapy. Live vaccines include mumps, measles, rubella (German measles), polio, BCG (tuberculosis), shingles and yellow fever.

Live vaccines contain a small amount of live virus or bacteria. If you have a weakened immune system, which you may do during chemotherapy, they could be harmful.

It's safe to have these vaccinations six months after your treatment finishes. Talk to your GP or treatment team before having any vaccinations.

If anyone you have close contact with needs to have a live vaccine speak to your treatment team or GP. They can advise what precautions you may need to take depending on the vaccination.

### Flu vaccination

Anyone at risk of a weakened immune system, and therefore more prone to infection, should have the flu vaccine. This includes people due to have, or already having, chemotherapy. The flu vaccine is not a live vaccine so doesn't contain any active viruses. Talk to your chemotherapy team or breast care nurse about the best time to have your flu jab.

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Next planned review begins 2022