Blinatumomab

Blinatumomab is a monoclonal antibody used to treat some people with acute lymphoblastic leukaemia (ALL).

Summary

- Blinatumomab is a monoclonal antibody targeted drug for the treatment of acute lymphoblastic leukaemia (ALL).
- It is used when you have had a relapse of your ALL or when you are at high risk of a relapse.
- With blinatumomab, monoclonal antibodies stick to the CD19 protein found on B-cells. This stimulates the body's immune system to destroy the leukaemia cells.
- Blinatumomab is suitable for both Philadelphia chromosome-positive and Philadelphia chromosome-negative patients. However, it is used at different stages if you have these chromosome changes.
- Administration of blinatumomab is via an intravenous infusion pump over a period of up to 96 hours.
- Your haematology team will recommend you stay in hospital for:
    - The first nine days of the first cycle of blinatumomab
    - The first two days of the second cycle of blinatumomab

Download our booklet on blinatumomab
Download our booklet on B-cell ALL

What is blinatumomab?

Blinatumomab is a monoclonal antibody targeted drug for the treatment of acute lymphoblastic leukaemia (ALL). Its monoclonal antibodies target the CD19 proteins on the surface of your leukaemia cells. This stimulates your immune system to destroy the leukaemia cells.

Blinatumomab is an antibody treatment that only targets the CD19 protein. It is called a monoclonal antibody because it only targets one protein.

Blinatumomab also binds to the CD3 protein on T-cells to help them recognise and attack the leukaemia cells.

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Who might have blinatumomab?

Blinatumomab can be used for some adults and children with B-cell ALL, although with certain restrictions.

It can treat both Philadelphia chromosome-positive and Philadelphia chromosome-negative ALL patients.

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How do you have blinatumomab?

Blinatumomab is continuously delivered via 'smart' infusion pumps over a period of four weeks. Infusion bags are changed two times per week. 'Smart' infusion pumps use computer technology and drug software libraries to reduce any dosing errors.

There is an induction phase and a consolidation phase with chemotherapy treatments.

> **Treatment consists of:**
>
> - **Up to two cycles for induction**
> - **Three more cycles for consolidation treatment**

You will be in hospital for the first nine days of the first cycle with blinatumomab and the first two days of the second cycle. Treatment is given to you as an outpatient after that. You often can have the treatment at home.

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Precautions to know about

No drug interaction studies of blinatumomab are available to date.

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Your haematology team will ask you about other medications you are taking before you start. They will also inform you of things to avoid. It is prudent to tell your doctor or nurse that you are having blinatumomab if you need to start any other medications.

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Fertility, pregnancy and breastfeeding info

Blinatumomab is a fairly new treatment but its effects may be seen over time as it is used more.

Fertility

No human studies have assessed the effects of blinatumomab on fertility. It may be hard to say what the effect is, as chemotherapy also damages fertility. Blinatumomab is also only used after these treatments. Discuss this with your doctor if you are concerned.

Pregnancy

Human reproductive studies with blinatumomab are not available. There is no data on the use of blinatumomab in pregnant women.

If there is a possibility of pregnancy, you should use effective contraception:

- During treatment with blinatumomab
- For at least 48 hours after treatment with blinatumomab

> **It is not recommended to take blinatumomab during pregnancy.**

Breastfeeding

There is no evidence that blinatumomab or its metabolites can get into in human milk. But, given its pharmacological properties, breastfeeding still presents a possible risk to the newborn.

Breastfeeding is not recommended:

- **During treatment with blinatumomab**
- **At least 48 hours after treatment with blinatumomab**

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Possible side effects

This is not a full list of all the side effects that can happen. The patient information leaflet in your medicine package has more information. Or you can find the leaflet in the Electronic Medicines Compendium.

The most common side effects experienced by patients taking blinatumomab are given below. The percentages of patients affected by them are also included:

- Fever (70.8% of patients)
- Infusion-related reactions (33.4%)
- Headache (32.7%)
- Nausea (23.9%)
- Low levels of red blood cells - Anaemia (23.3%)
- Low levels of platelets – Bruising/bleeding (21.6%)
- Build-up of fluid in parts of the body causing swelling – Oedema (21.4%)

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Serious side effects to know about

The most serious side effects with blinatumomab are:

- Infections (26.6%)
- Neurological events (12.2%)
- Neutropenia/febrile neutropenia (9.1%)
- Cytokine release syndrome (2.7%)
- Tumour lysis syndrome (0.8%)

Cytokine release syndrome

Cytokine release syndrome is a full-blown inflammatory response to a variety of factors. These include infections and certain drugs. Cytokine release syndrome shows a variety of symptoms. These can range from mild, flu-like symptoms to severe and life-threatening.

They include:

- Mild symptoms include fever, fatigue, headache, rash, joint and muscle pain
- More severe cases experience:
- Low blood pressure
- High fever
- Circulatory shock
- Blood vessel leakage
- Disseminated intravascular coagulation
- Multi-organ system failure

Tumour lysis syndrome

Tumour lysis syndrome occurs when large numbers of leukaemia cells die at the same time. When dying, leukaemia cells release uric acid, potassium and phosphorus into the blood.

The levels of these waste products can get higher than the kidney can cope with. This may result in damage to the kidney, but also the heart and liver.

> **The risk of tumour lysis syndrome and cytokine release syndrome is why the first cycles of blinatumomab are given in hospital. After that, the risks are lower so you can be treated at home.**

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If blinatumomab doesn't work

If blinatumomab has not worked for you, other treatments are available. They include the targeted medicines inotuzumab ozogamicin and chimeric antigen receptor (CAR) T-cell therapy.

Your haematology team may offer you combinations of chemotherapy. If you did not start your ALL treatment with chemotherapy you may receive a combination of:

- Vincristine
- Daunorubicin or doxorubicin
- Cytarabine - either low dose cytarabine or higher dose cytarabine
- Asparaginase
- Etoposide
- Mercaptopurine
- Methotrexate
- Cyclophosphamide
- Steroids such as prednisone or dexamethasone

Other options include radiation therapy or stem cell transplant. Your consultant will be able to tell you about the best treatment for you going forward.

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Need support?

You are not alone. We're here for you whether you have a diagnosis yourself or know someone who has. If you'd like advice, support, or a listening ear, call our freephone helpline on 08088 010 444 or send a WhatsApp message to 07500 068 065.

Helpline and WhatsApp →

Help us improve our information

We aim to provide information that's reliable, up-to-date, and covers what matters to you. Please complete our short survey to help us improve our information and make sure it meets your needs.

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About our information

This information is aimed at people in the UK. We do our best to make sure it is accurate and up to date but it should not replace advice from your health professional. Find out more about our information.

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