MEDICINE INFORMATION

Fludarabine and total-body irradiation

Patient information about chemotherapy and total-body irradiation before a donor stem cell transplant.

At a glance

Before transplant	Fludarabine and total-body irradiation (TBI).
Transplant day	Donor stem cells are given through a drip. This is called day 0.
After transplant	Some plans use cyclophosphamide to prevent graft-versus-host disease.
Before you start	Ask for your transplant calendar, including radiation appointments and medicines after day 0.
How it is given	Fludarabine is given through a vein. A machine outside the body delivers radiation to the whole body before the donor stem cell infusion.

What this treatment is and how it works

Fludarabine is chemotherapy. Total-body irradiation (TBI) uses radiation to treat the whole body. Together they reduce immune and marrow activity before a donor stem cell transplant.

When it may be used

This approach is used in some donor transplant plans. The amount and timing of radiation depend on the plan. Ask what comes before and after the donor cells are given.

Before treatment

Ask for the calendar and how radiotherapy appointments fit into your admission. Tell the team about previous radiotherapy, lung problems, infections and medicines.

How treatment is given

Preparing for donor cells

Fludarabine reduces immune activity so the donor cells can settle and start making blood cells. An infusion is given through a vein. The radiation team plans the position and number of total-body irradiation sessions. Tell them beforehand if pain, mobility problems or anxiety may make it difficult to stay in position. You will normally be alone during the radiation itself, but the team can see and speak to you.

On and after day 0

The donor stem cells enter through a vein. The team watches your temperature, breathing and blood pressure during the infusion. When post-transplant cyclophosphamide is used, it is given after the cells, commonly on days +3 and +4 in published schedules. The team gives fluids and mesna, a medicine that helps protect the bladder, and checks for blood in the urine. Other medicines to prevent graft-versus-host disease may start or continue at different times.

During marrow recovery

You may need red-cell or platelet transfusions while your counts recover. Tell another hospital that you have had fludarabine and a donor transplant before a transfusion. Keep the transfusion instructions from your transplant team with you.

Tests and monitoring during treatment

The team checks blood counts, signs of infection, kidney and liver function, and recovery after transplant. They may review lung symptoms and fluid balance.

If you need a blood transfusion

Fludarabine and a donor stem cell transplant both affect which blood components you need. If you need red cells or platelets, tell the transfusion team about your treatment so they can arrange irradiated components. These are specially treated before transfusion to prevent a rare, serious reaction. Ask how long the precaution applies and whether you should carry a transfusion alert card or letter.

Side effects

Common or more frequent side effects

- **Very low blood counts.** There is a period after conditioning when the marrow makes few new blood cells. During this time the team watches for infection and bleeding and may give transfusions. Ask which blood counts the team is watching before discharge. Use the transplant unit’s contact instructions even if your temperature is normal and you feel suddenly unwell.
- **Sore mouth or throat.** The lining of the mouth and throat can become sore enough to make drinking or swallowing medicine uncomfortable. Tell the ward early so it can offer pain relief and assess your intake. Your team may also use fluids or nutrition support for a period while the lining heals.
- **Tiredness and effects around the radiation visit.** Tiredness, nausea or loose stools can follow total-body irradiation. Some people get a dry mouth or temporary tenderness near the jaw. Ask about medicines for nausea and tell the radiation team if soreness makes it hard to eat or drink. Your symptoms can also reflect the chemotherapy and transplant.

Other reported side effects

Tell the team about painful swallowing, dizziness, new rash or trouble drinking. Ask what to expect from the radiation sessions and how to stay comfortable.

Serious effects to recognise

- **Possible graft-versus-host disease after a donor transplant.** Contact the transplant unit for a spreading rash, watery diarrhoea or jaundice. These changes have several possible causes. The team can check for infection or donor immune cells reacting against tissues and decide which treatment is needed.
- **Bleeding or pain from the bladder.** Cyclophosphamide can irritate the bladder. Report blood, clots, burning or difficulty passing urine. If your team gives mesna or advises a fluid plan, follow the written instructions.

Infection and bleeding can become serious after conditioning. Tell the team promptly if you develop new breathlessness.

When to seek urgent help

Tell ward staff or call your transplant team urgently for fever, chills, bleeding, worsening diarrhoea, rash, yellow eyes or breathing changes. Follow your hospital's written temperature instructions. If you have no written threshold, call at 37.5°C (99.5°F) or above, or below 36°C (96.8°F). Call if you feel very unwell even when your temperature is normal.

Seek emergency care for severe breathing difficulty, swelling of the face or throat, chest pain, collapse or bleeding that will not stop.

Practical advice for this treatment

- Ask for written instructions on fever, line problems, missed tablets, and when to go directly to the transplant centre. Keep the ward number available after discharge.
- Tell the nurses if your mouth is becoming sore or you are struggling to drink. They can help with mouth care, pain relief or extra fluids before eating becomes difficult.
- Tell the team about burning when you pass urine, a new cough, a growing rash or a change in your usual bowel habits. Note when the change started. These symptoms can have several causes after a transplant and may need tests.
- Before leaving hospital, agree where to stay, when to have blood taken and who can help with your medicines. Take transplant team advice before changing infection precautions or arranging travel.

Medicines, interactions and vaccinations

Check with the transplant pharmacist before starting or stopping medicines. Ask how the team plans infection prevention and vaccination after transplant. If cyclophosphamide is part of your plan, the team may give fluids and a medicine called mesna to protect your bladder. Tell staff if you notice blood or pain when passing urine.

Everyday life

Bring an updated calendar and check how the team will transfer you between the transplant ward and radiation unit. Ask how your caregiver can stay in touch.

Pregnancy, fertility and breastfeeding

Both chemotherapy and total-body irradiation can affect fertility. Ask about preservation before conditioning and for written contraception and breastfeeding guidance.

After treatment

Ask about long-term follow-up, including lungs, hormone health, eyes and bone health where relevant. Report new symptoms between visits.

Words you may hear

- **Allogeneic transplant.** The stem cells come from a donor.
- **Conditioning.** The treatment given before you receive the cells.
- **Engraftment.** The new stem cells begin making blood cells.
- **Graft-versus-host disease (GVHD).** Donor immune cells react against some of your tissues. This can affect the skin, gut or liver, among other organs.

Frequently asked questions

What does TBI stand for?

Total-body irradiation. It is part of conditioning in some donor transplant plans.

Will I be radioactive afterwards?

External total-body irradiation does not leave radiation in your body. The transplant team may still advise visiting and infection precautions during recovery because your immune system is weaker.

Will everyone have the same number of sessions?

Ask for your own calendar. The team chooses the radiation plan and explains the timing.

What is graft-versus-host disease?

It occurs when donor immune cells react against tissues in your body.

Why might cyclophosphamide appear after day zero?

Some teams give it after transplant to reduce graft-versus-host disease. Follow the plan your team gives you.

Do I need follow-up after the transplant has healed?

Yes. Your transplant team will plan checks for recovery and possible later effects.

What should I do if my ankles swell while the team is giving extra fluid?

Tell the ward team, especially if you are passing much less urine or becoming short of breath. The team will check your weight and fluid balance.

Individual medicine guides

- Fludarabine
- Cyclophosphamide
- Total-body irradiation

Sources and further reading

Read this guide alongside your hospital’s plan. Ask your pharmacist to confirm the exact product dispensed in India and follow the instructions for that product.

Summary of Product Characteristics (SmPC) and prescribing information

- Fludarabine phosphate injection or infusion - Irish HPRA SmPC
- Cyclophosphamide injection - UK SmPC
- Fludarabine injection - US prescribing information

Clinical protocols and other references

- eviQ fludarabine and low-dose total-body irradiation
- eviQ post-transplant cyclophosphamide
- British Society for Haematology guideline on irradiated blood components
- Canadian National Advisory Committee recommendations on irradiated blood components

Additional sources

- eviQ patient information for a fludarabine and TBI plan
- Study of post-transplant cyclophosphamide for graft-versus-host disease prevention

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Review record updated: 14 November 2026 · Editorial review policy