



CAR T-CELL Therapy



WHAT YOU NEED TO KNOW

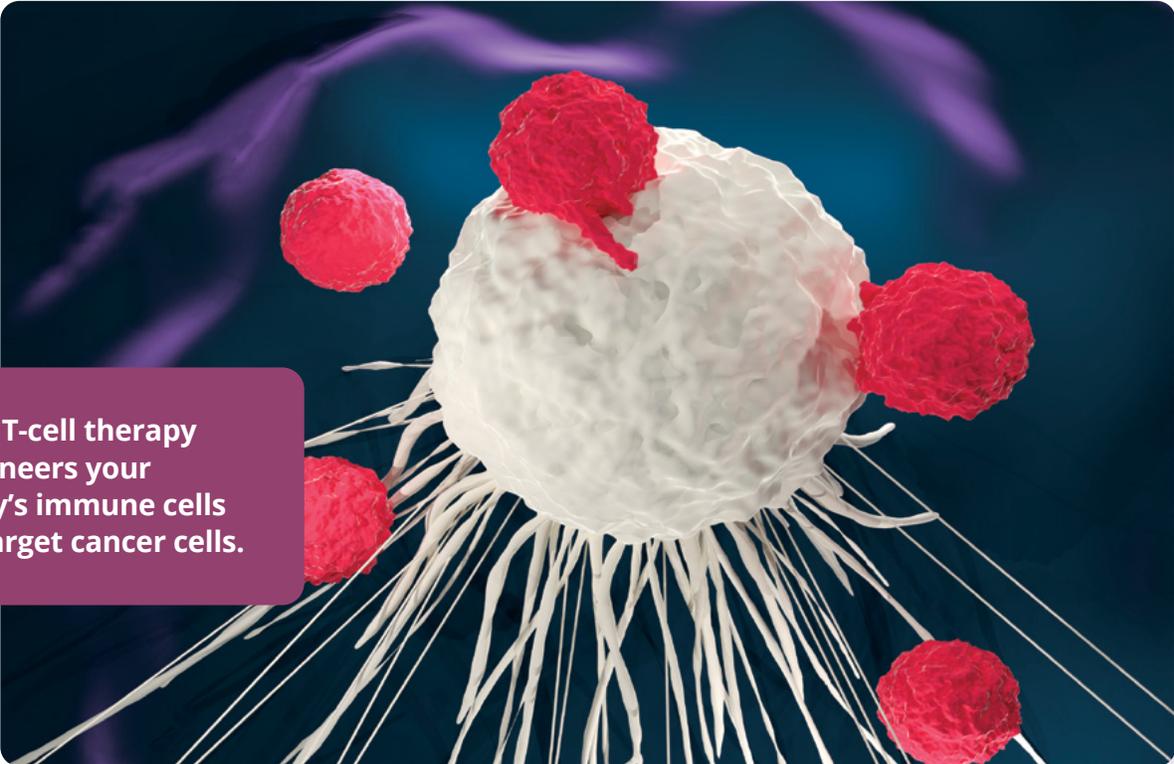
You or your loved one has been diagnosed with a type of blood cancer. One of the treatments your doctor may offer you is CAR T-cell therapy. What does it mean and how does it work?

This fact sheet will:

Give you an overview of immunotherapy

Introduce you to how your immune system works

Explain the CAR T-cell therapy process



CAR T-cell therapy engineers your body's immune cells to target cancer cells.

Highlights

- Chimeric Antigen Receptor (CAR) T-cell therapy is a new type of treatment for some blood cancers.
- CAR T uses your own immune cells (T-cells) to detect and kill cancer cells.
- CAR T-cell therapy is effective in some blood cancers that have not responded to other treatment.

Your immune system and immunotherapy

CAR T-cell therapy is a type of immunotherapy. Immunotherapy uses agents that trigger your own immune system to fight cancer. CAR T-cells are only available if you meet certain criteria and have not responded to other treatment. Your healthcare team will determine whether you are a candidate for CAR T-cell therapy.

Your immune system is your body's first defence against infection and cancer. It defends your body from foreign materials including bacteria, viruses and blood cancer cells. Your immune system recognizes when materials are foreign because they contain markers called antigens.

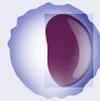
Your immune system is a network of different cell types. They work together to find and destroy infected or cancerous cells. Your lymphocytes are one part of this system. They are a type of white blood cell that fights foreign material and kills cancer cells.

There are three major types of lymphocytes:



T lymphocytes
(T-cells)

Different T-cells have different functions. Some T-cells help signal to your immune system that foreign materials are present. Some T-cells kill invading or infected cells in your body.



B lymphocytes
(B-cells)

B-cells are found in your lymph nodes, bone marrow and other parts of your lymphatic system. Your immune system signals B-cells to make antibodies that recognize and target antigens. When an antibody binds to an antigen on the surface of a cell, this also flags the cell for detection and destruction by other components of the immune system, like NK cells.



Natural killer
(NK cells)

NK cells also attack cancer cells and eliminate viruses.

Chimeric Antigen Receptor (CAR) T-cell therapy

The CAR T-cell therapy process

Talk to your doctor



1

- Your doctor will help you decide if CAR T-cell therapy is the right option for you.
- You will schedule a time to go to the hospital for your T-cells to be collected.

Back to the hospital



4

- You will receive chemotherapy to reduce the number of normal T-cells in your body. This will make space for the CAR T-cells.
- Your CAR T-cells will be thawed and then put back into your bloodstream.

In the hospital



2

- A medical team will draw your blood.
- The white blood cells will be separated out. The rest of your blood will be put back into your bloodstream. This process is called leukapheresis.
- Your T-cells will be sent to a lab where they will be engineered into CAR T-cells.

In your body



5

- Your CAR T-cells multiply in your bloodstream.
- Your CAR T-cells find and kill cancer cells.
- Your CAR T-cells may remain in your bloodstream to attack cancer if it returns.

In the lab



3

- Your T-cells will be genetically modified (changed) to find and kill cancer cells.
- These T-cells are now called CAR T-cells.
- The CAR T-cells will be multiplied until there are millions of them and then carefully frozen to preserve their activity.
- Your CAR T-cells will be sent back to the hospital where you will receive the treatment.

Monitoring



6

- Your doctor will monitor for side effects. You may need to stay in or return to the hospital for a period of time.
- Your doctor will continue to follow up to understand the long-term results of the treatment.



Possible side effects of treatment

Most side effects can be managed with medication. Careful monitoring of your condition after CAR T-cells are infused is important to minimize potentially severe side effects.

Cytokine-Release Syndrome (CRS) is a potential inflammatory response to CAR T-cell therapy. Symptoms typically look like mild to moderate flu symptoms. CRS can typically be treated with intravenous (IV) fluids and medication.

Neurological toxicities have been observed in the CAR T-cell treatment for some types of blood cancer. Common symptoms include speech impairment, confusion, delirium, involuntary muscle twitching, hallucinations or unresponsiveness.

Tumour Lysis Syndrome (TLS) happens when a large number of cancer cells die within a short period of time, such as during chemotherapy. The cancer cells release their contents, such as uric acid, into the bloodstream. If you have a high white blood cell count when you start treatment, you may be at higher risk for TLS. Your medical team will monitor and identify your risk for TLS.

The future of CAR T-cell therapy

CAR T-cell therapy is effective in some blood cancers that have not responded to other treatments. Further research is underway to improve CAR T-cell therapy to advance cancer treatment and personalized medicine. Clinical trials are ongoing to expand the use of CAR-T therapy in more types of blood cancers. Talk to your doctor about whether CAR T-cell therapy is a good option for you.

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