Understanding the CAR T cell therapy treatment experience

Some CAR T cell therapies are FDA approved, but many are still being studied in clinical trials.

Chimeric antigen receptor (CAR) T cell therapy is a personalized approach to treating certain blood cancers. Unlike traditional cancer therapies, autologous CAR T cell therapies are often administered as a one-time treatment made from a patient’s own T cells, which are “reprogrammed” during a sophisticated manufacturing process to help the T cells recognize and fight specific target cells, including some normal and cancer cells.

Step 1: T Cell Collection

- T cells, which are a type of white blood cell that function as key fighters in the immune system, are removed through a process called apheresis or leukapheresis, which takes several hours.
- During the T cell collection process, blood is withdrawn and T cells are separated from other blood components. The remaining blood is then infused back into the patient.

Step 2: T Cell Activation During Manufacturing

- The collected T cells are shipped to a specialized manufacturing facility where they undergo genetic “reprogramming” to become CAR T cells.
- These cells have receptors (or hooks) added to their surface to help them recognize and fight cancer cells. The CARs are then linked to cytokines, which are proteins that help the CAR T cells travel throughout the body to attack the target cells.

Step 3: Preparing for Treatment

- A few days before receiving their CAR T cell therapy, patients receive a short course of low-dose chemotherapy, known as lymphodepleting chemotherapy, to help prepare the body to receive the reprogrammed CAR T cells.
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- The manufactured CAR T cells may expand and travel throughout the body to attack the target cells.

Step 4: CAR T Cell Therapy Infusion

- At the treatment center, patients receive their personalized CAR T cells with one dose.
- The process usually takes about an hour.
- From there, the CAR T cells may expand and travel throughout the body to attack the target cells.

Step 5: Monitoring

- CAR T cell treatment centers will vary based on the individual patient. Patients need to stay near the treatment center for a few days to a few weeks.
- Patients and caregivers are provided education and support by their care team to prepare and support by their caregivers.
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Step 6: Continued Follow Up

- The patient’s care team will continue to follow up with the patient on phone calls and in-person appointments to assess whether the CAR T cell therapy is working and to watch for side effects.
- Patients will see their doctor for ongoing follow-up after treatment.
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