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Chimeric antigen receptor (CAR) T-cell therapy

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Chimeric antigen receptor (CAR) T-cell therapy is one of the most accessible immunotherapies that has been used for cancer treatment for over 10 years. CAR T-cell therapy has shown remarkable success in leukaemia treatment in comparison to solid tumours. CAR T-cells are produced by isolating a sample of T-cells from the patient’s blood and modifying them to produce CAR proteins on their surface. The genetically engineered T-cells are reinfused into the patient's body, allowing them to attach to the tumour-specific antigens and kill the tumour cells. The backbone of CAR T-cell therapy is T cells, which are also recognised as the workhorse of the immune system as they play a major role in orchestrating the immune response and help in destroying tumour cells. Officially, two CAR T-cell therapies were approved by the food and drug administration (FDA) in 2017 for the treatment of acute lymphoblastic leukaemia (ALL) in children and advanced lymphomas in adults. Similar to other treatments, this also has some possible side effects, such as high fever, inflammation and fatigue but development in research aims to overcome these obstacles. CAR T-cell is a living drug whose benefits can last for many years and is considered as a possible option when no therapy exists. The statement indicates that in many leukaemia cases when all other treatments have failed, this therapy has saved the lives of many patients. On the whole, CAR T-cell therapy is one of the most successful treatment approaches for patients with leukaemia. At present, research and clinical trials are going on to improve its role in solid tumours too.

Keywords: Chimeric antigen receptor, Leukaemia, Immunotherapy, T-cells, Lymphoma, Living drug

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