

SNAPSHOT

The risky side effects of CAR-T therapy

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Chimeric antigen receptor T-cell, or CAR-T, therapy has been a promising immunotherapy for patients with blood cancers. However, this personalized treatment—which genetically modifies patients' T cells to attack specific antigens—has side effects that can increase the risk of death from other causes. *Harvard Public Health* spoke with David Cordas dos Santos, an instructor of medicine at Dana-Farber Cancer Institute and the lead author of a study on CAR-T patients who have died from other causes (called non-relapse mortality).

Why study this topic?

There has not been a comprehensive study of CAR-T cell therapy that calculates overall non-relapse mortality. If we can learn the cause of adverse events, what does that mean for patients and how can we use that information in the clinic?

What did you find?

We found the non-relapse mortality rate for patients with lymphoma and multiple myeloma one year after treatment was about 6.8 percent, which was higher than we expected. We identified 7,604 patients across 46 studies published

through March 2024.

More than half of the patients died from infections. We looked for specific pathogens, and most of the known infection-related deaths reported were listed as caused by COVID-19. However, about two-thirds of the pathogens were not identified or not reported.

The second most common cause was death from a secondary malignancy, so another cancer had developed.

What would you like to see happen based on the study's results?

We would like to see improved guidelines for clinicians who have patients on CAR-T cell treatment and raise awareness about the risk of infections and secondary malignancies. There also can be better patient education; if you have a fever, call your doctor immediately. We asked researchers to report these deaths in more detail in the future. Now we see that studies are starting to report this.

—Sarah Muthler

(Study in *Nature Medicine* (<https://www.nature.com/articles/s41591-024-03084-6>), July 2024)

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