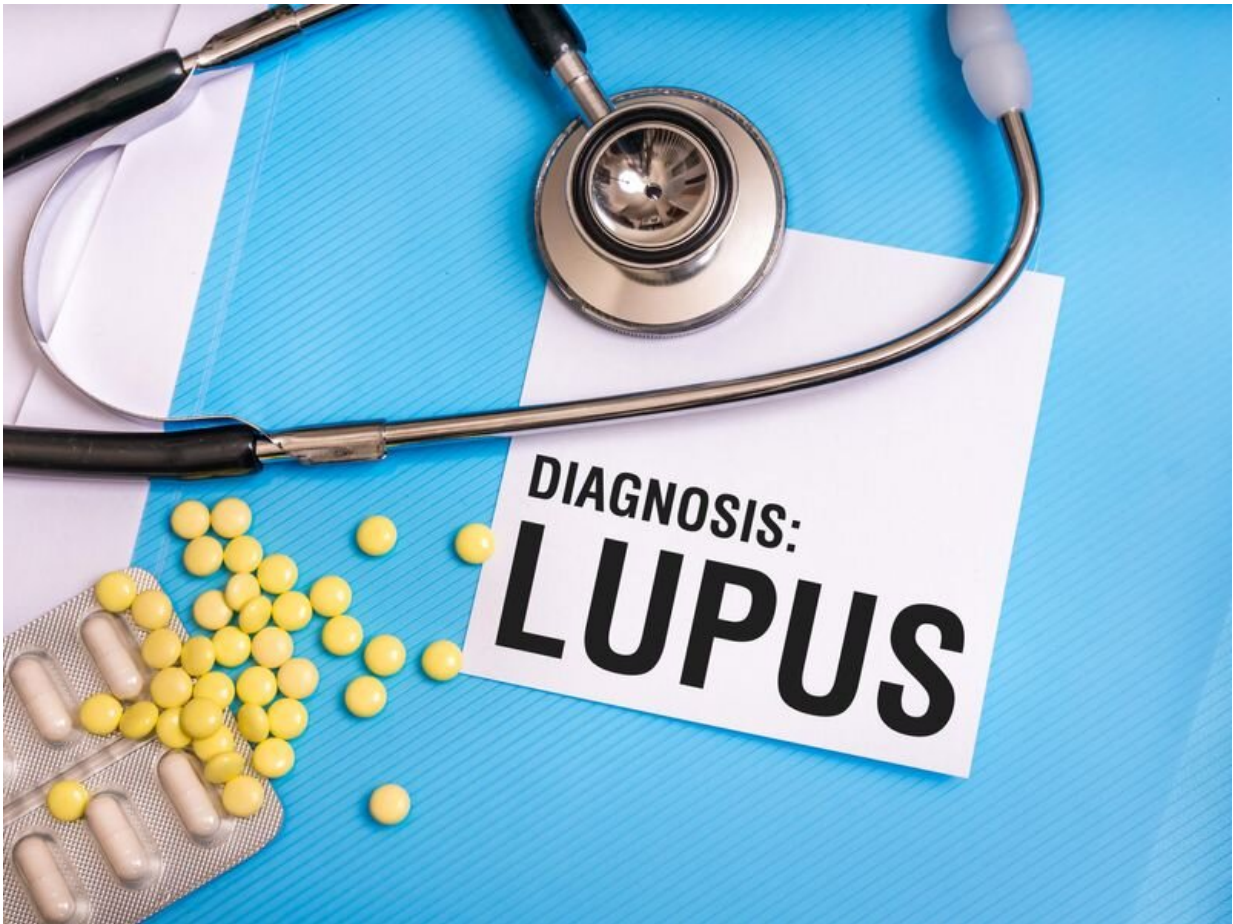


In small study, CAR-T therapy pushes lupus into remission

September 15 2022, by Denise Mann HealthDay Reporter



While there's no cure for lupus and treatments don't work for many of

the 1.5 million people who live with the disease in the United States, a new study shows a cancer therapy may kick hard-to-treat lupus into remission.

[Lupus](#) is an autoimmune disease that occurs when the body's immune system engages in friendly fire against its own skin, joints, bones, kidneys and heart, triggering a host of symptoms.

Enter [CAR-T therapy](#).

Used to treat certain types of cancer, the therapy takes your body's own T-cells, trains them in the lab to recognize very specific cells, and then infuses them back into the body to do their job. In lupus, the therapy targets CD19, a protein on B cells.

The small study included five people with severe lupus involving multiple organs—such as the kidneys, heart, lungs and joints—who hadn't responded to standard therapy.

After about three months after one treatment, patients showed improvements in symptoms, including a remission of organ involvement and the disappearance of disease-related autoantibodies. What's more, they didn't need any additional treatments. Similar results in one person with lupus were published in the *New England Journal of Medicine* in 2021.

"Severe [lupus] is very sensitive to CAR-T cell treatment, and [people] can go into longstanding drug-free remission," said study author Dr. Georg Schett. He is vice president of research and chair of the department of internal medicine at the Friedrich-Alexander University Erlangen-Nürnberg in Germany.

Side effects in the new study were mild, he said. In cancer studies, this

type of therapy has caused [high fever](#) and chills, trouble breathing, and [cytokine release syndrome](#), which can happen as CAR-T cells multiply and release large amounts of inflammatory [cytokines](#) into the bloodstream.

Now, researchers plan to find out if the [immune system](#) has really undergone a deep reset and behaves normally going forward.

"Longer monitoring of patients will be important to test whether they enjoy long-term disease-free remission and are eventually cured from [lupus]," Schett said.

This treatment may be available sooner rather than later, he said. "CAR-T cell therapy is already established in cancer medicine, particularly to treat [lymphoma](#) and [leukemia](#)," Schett noted.

The study was published Sept. 15 in the journal *Nature Medicine*.

Lupus experts said they were excited about the new findings.

"This is a very, very big deal," said Hoang Nguyen, senior scientific program manager at the Lupus Research Alliance. Her organization supported the initial studies looking at CAR-T therapy in a mouse model of lupus.

"There is no real cure for lupus, and the effectiveness of current therapies is limited," said Nguyen. "This is the first time that a treatment eliminated lupus symptoms in all treated subjects in a 100-day study."

Still, she cautioned, there were only five people in the trial and there's not enough information on the long-term effects yet.

Dr. Jill Buyon is director of the Lupus Center at NYU Langone in New

York City. "Patients got better with regard to multiple symptoms and didn't require other therapies, including [steroids](#). More studies in larger numbers of people with lupus who are followed for longer are needed, but this is very exciting," she said.

And according to Dr. Ruth Fernandez Ruiz, a rheumatologist at the Hospital for Special Surgery in New York City, "[Lupus] patients had striking clinical improvement after CAR-T cell therapy and experienced clinical remission while off... [the] drugs for the duration of follow-up after CAR-T cell therapy. Despite the limited sample size, it is likely that there will be a role in implementing CAR-T cell therapy in [[lupus](#)], particularly for patients with [severe disease](#) that is refractory [resistant] to standard-of-care treatments."

More information: The Lupus Foundation of America has [more on lupus treatments](#).

Andreas Mackensen et al, Anti-CD19 CAR T cell therapy for refractory systemic lupus erythematosus, *Nature Medicine* (2022). [DOI: 10.1038/s41591-022-02017-5](#)

Dimitrios Mouggiakakos et al, CD19-Targeted CAR T Cells in Refractory Systemic Lupus Erythematosus, *New England Journal of Medicine* (2021). [DOI: 10.1056/NEJMc2107725](#)

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