

# New gene therapy offers hope for cancer patients

Tom Whipple Science Editor

An experimental gene therapy has worked perfectly in a third of lymphoma patients who had failed all other treatments, leaving them with no sign of the cancer after six months.

Eight in ten of the 101 patients in the trial, the results of which were described as “extraordinary” by one cancer specialist, also saw their cancer shrink by a half or more.

Experts said that the promising results of the treatment, which uses the body's own blood cells to attack the cancer, mean that effective gene therapy is now close to being another standard tool in the fight against cancer.

Non-Hodgkin Lymphoma is a blood cancer that affects almost 14,000 people and kills almost 5,000 every year in the UK. All cancers are able to multiply by remaining hidden to the body's immune system, which normally attacks them.

The new treatment involves taking

immune cells, known as T-cells, from a patient's own blood and inserting a gene into them that means they can recognise the cancer. They are then injected back in where they multiply to attack the cancer.

Those selected for the trial would in general have a life expectancy of six months. To have almost all of them alive six months later was considered a significant achievement.

“The numbers are fantastic,” said Frederick Locke, from Moffitt Cancer Center in Tampa, Florida, who worked with Kite, the company trying to bring the treatment to market. “These are heavily treated patients who have no other options.”

It was not without side effects though. Thirteen patients developed a condition where their immune system overreacted and a third had anaemia or related conditions. Two died from the therapy itself. Even so, compared to chemotherapy — and lymphoma itself — it was relatively unproblematic. Dr

Roy Herbst, from the Yale cancer centre, was not involved in the trial. “This seems extraordinary ... extremely encouraging,” he said.

Dimas Padilla, 43, from Orlando, is one of those who believes his life has been saved by the treatment. He was driving when he got a phone call telling him that he had no other conventional options.

“I actually needed to park ... I was thinking how am I going to tell this to my mother, my wife, my children,” he said. Now, though, after the treatment, which is called CAR-T therapy, he is in remission. The therapy, he said, made his tumours “shrink like ice cubes ... They were able to save my life.”

The full results will be presented at the American Association for Cancer Research conference in April and the company plans to apply for approval in the EU market soon. Cancer experts said that they will be closely watching the follow-up studies to see if the treatment works in the long term.