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New Pediatric Kidney Transplant without Immunosuppressants

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A typical organ transplant requires the use of immunosuppressants by the recipient, to avoid organ rejection, and it comes with the side effects like the elevated risk of infection, cancer, etc. even after taking immunosuppressive drugs, there are still chances of organ rejection.

In California, doctors have transplanted kidneys in 3 children suffering from a rare genetic disease that affects the kidney and requires its transplantation. What's special about this successful transplantation is the technique with which it is done, and that it doesn't require any immune-suppressing drugs afterwards.

They did it by transplanting stem cells from the organ donor's bone marrow into the recipient, along with their new organ. These stem cells can mature into a variety of blood cells including lymphocytes, a type of immune cell, that signals the body about foreign substances. Because these stem cells come from the donor, the newly transplanted organ would be recognized as familiar by the transplant recipient's body, thus reducing the risk of rejection.

However, the new immune cells inadvertently attack the transplant recipient's body from within after stem cell transplants. Such graft-versus-host disease is a major risk for stem cell transplants.

But no such graft-versus-host disease has been reported in the 3 pediatric patients who underwent this procedure. And now the three patients have been living with their new, fully functioning kidneys for 22-34 months. Neither these kids need immunosuppressant drugs, nor do they undergo Schimke Immuno-osseous Dysplasia (SIOD).

The research team is calling this new technique, DISOT for dual immune/solid organ transplant. It recently received approval from FDA for a few conditions that affect the kidneys.

The team is planning to further investigate the application of DISOT for the transplantation of other solid organs.

KEYWORDS

Blood, blood pressure, bone, bone marrow, cancer, cell, children, diabetes, dialysis, drugs, high blood pressure