

Blood cells help treat diabetes patients-study

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Washington, April 10 (Reuters) - Stem cells taken from the blood of a few diabetes patients have "re-set" their immune systems, helping 14 out of 15 live for months and even years without insulin, researchers reported on Tuesday.

While they are not claiming to have cured the patients, they said their experiment shows it may be possible to at least interrupt the mistaken immune response that destroys insulin-producing cells in type-1 diabetes.

"It'll generate controversy and interest and excitement," Dr. Richard Burt of Northwestern University in Chicago, who helped lead the study, said in a telephone interview.

Type-1 diabetes affects an estimated 5 to 10 percent of the 20 million Americans with diabetes. Also called juvenile diabetes, it is often found in children and has different causes from the more common type-2 diabetes that is linked with obesity, poor diet and a lack of exercise.

Type-1 diabetes is an autoimmune disease, caused by the mistaken destruction of the so-called islet cells in the pancreas that create insulin. Patients must almost always take insulin daily to control their blood sugar levels.

Burt's team chose to work with 15 adults newly diagnosed with type-1 diabetes – an unusual group, but Burt said adults can take part in such an experiment with what is known as informed consent.

Burt and Dr. Julio Voltarelli of the University of Sao Paulo in Brazil used drugs to destroy the bone marrow in the patients, in effect, removing their immune systems, they reported in the *Journal of the American Medical Association*.

EASIER TO TOLERATE

"We don't use those intense regimens they use in cancer. This is a lot less violent to the body – a lot easier to tolerate," Burt said.

They filtered out adult stem cells from the blood of the patients. These adult stem cells, called hematopoietic stem cells, give rise to the white blood immune system cells.

Burt said his team did nothing special to find specific types of stem cells, but simply injected each patient with a mixture of his or her own stem cells.

This method is called autologous nonmyeloablative hematopoietic stem cell transplantation.

The experiment failed in the first patient, Burt and Voltarelli reported. "We used steroids," Burt said. In the next 14, they left out the steroids.

"Ninety-three percent of patients achieved different periods of insulin independence and treatment-related toxicity was low, with no mortality," they wrote in their report.

Burt believes the treatment has re-set the immune systems of the patients, stopping, at least temporarily, the onslaught on the pancreatic islet cells and allowing some of them to regenerate and produce insulin on their own.

"The insulin-producing cells in the pancreas regenerate," he said.

The researchers have not tested this by looking at the pancreases of the patients. "We have no hard evidence. The clinical outcome suggests that," Burt said.

Burt and colleagues said 14 patients became insulin-free – one for nearly three years, four for two years and others for at least several months.

Dr. Jay Skyler of the Diabetes Research Institute at the University of Miami said other researchers are looking at cell transplants to treat diabetes.

Skyler said many are using specific immune cells such as dendritic cells and T-cells, as well as embryonic stem cells and bone marrow cells.

"Research in this field is likely to explode in the next few years," Skyler wrote in a commentary.

"The time may indeed be coming for starting to reverse and prevent type 1 diabetes mellitus," he wrote. □