

Promising advances in islet cell transplants for diabetes

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University of Illinois at Chicago researchers have modified the procedure for islet cell transplantation and achieved insulin independence in diabetes patients with fewer but better-functioning pancreatic islet cells.

The study results are published in the June issue of the *American Journal of Transplantation*.

UIC is one of only a few centers worldwide able to achieve reproducible and consistent insulin independence in severe type 1 diabetes patients.

In the UIC study, 10 patients with diabetes received between one and three islet cell transplants and were followed for 15 months.

Four received the Edmonton protocol, developed at the University of Alberta, which uses a combination of two immunosuppressants and a monoclonal antibody drug, daclizumab.

Six patients received the UIC protocol -- a combination of etanercept (an anti-inflammatory drug developed to treat rheumatoid arthritis) and exenatide (a drug approved for use in type 2 diabetes to improve glucose control) -- and the Edmonton regimen.

The new procedure allowed patients to get off insulin after a single transplant versus the two to four transplants that were needed using the older protocol, said Dr. José Oberholzer, director of cell and pancreas

transplantation at UIC and lead author of the study.

All patients in the study achieved insulin independence, but those who received the UIC protocol required fewer than half the number of islets as those who were treated under the Edmonton protocol.

The four patients who received the Edmonton protocol needed either two or three sequential islet cell transplants to achieve insulin-independence.

The six patients who were treated using the UIC protocol initially achieved insulin-independence after only one islet transplant. Two of these patients required a second islet cell transplant, and one resumed insulin five months after the second transplant due to other complications.

Progress in islet cell transplantation has been limited by the shortage of donor organs, said Oberholzer, who is associate professor of surgery, bioengineering and endocrinology at UIC.

"This study is extremely promising and shows that we can achieve success with fewer islet cells, freeing patients from the need to check their insulin, even after 20 or 30 years of suffering from diabetes," he said.

UIC is one of seven federally funded National Institutes of Health Islet Cell Resource Centers across the country that provides researchers with human pancreatic islet cells for transplantation into diabetic patients and for basic science research on diabetes.

"We have proven that if you have the right team and the right environment you can achieve islet cell transplantation success in a very short time," said Oberholzer, who has led UIC's program since 2003.

Building on results from Oberholzer's study, UIC is participating in the Clinical Islet Transplant Consortium, funded by the NIH to identify the most effective combination of anti-rejection drugs to maximize islet engraftment while reducing toxic side-effects.

Source: University of Illinois at Chicago

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