

April 11, 2007

Study Suggests New Avenue On Diabetes

Thirteen young diabetics in Brazil have been able to stop receiving insulin after being treated with stem cells taken from their own blood, researchers are reporting.

The experimental procedure has enabled the young people, who have Type 1 diabetes, to live free of insulin shots for as long as three years so far, according to the study, being published Wednesday in *The Journal of the American Medical Association*.

Larger, more rigorous studies are needed to determine if stem cell transplants could become standard treatment for people with the disease, once called juvenile diabetes, which is much less common than Type 2, associated with obesity. While promising for future research, the study did not involve a comparison group with which to make sure the treatment was indeed better than standard diabetes care.

The research was done in Brazil because doctors in the United States were not interested in the approach, said one of the authors, Dr. Richard K Burt of Northwestern University's medical school.

The patients ranged in age from 14 to 31 and were newly found to have Type 1 diabetes, an autoimmune disease in which the body attacks insulin-producing cells in the pancreas. Insulin is needed to regulate blood sugar levels, which when too high can lead to heart disease, blindness, nerve problems and kidney damage.

The purpose of the stem cell transplant was to stop the body's attack on the pancreas. A study published last year described a different kind of experimental transplant, using pancreas cells from donated cadavers, that enabled a few diabetics to give up insulin shots. But that requires lifelong use of anti-rejection medicine, which the patients in Brazil do not need since the stem cells were their own.

In the newly reported study, 15 diabetics were treated at a bone marrow center at the University of São Paulo. In each case, the disease was diagnosed before the patients' insulin-producing cells had been destroyed. That timing is crucial, Dr. Burt said. "If you wait too long," he said, "you've exceeded the body's ability to repair itself."

Indeed, part of the procedure entails several days of high-dose chemotherapy, which virtually shuts down the immune system and so stops destruction of the few insulin-producing cells that the body has not already destroyed. The harvested stem cells, when injected back into the body, then build a new, healthier immune system that does not attack such cells.

Patients were hospitalized for about three weeks. Many had side effects including nausea, vomiting and hair loss. One developed pneumonia, the only severe complication.

Doctors changed the drug regimen after the treatment failed in the first patient, who ended up needing more insulin than before the study. Another patient also relapsed.

The remaining 13 "live a normal life without taking insulin," said another author, Dr. Julio C. Voltarelli of the University of São Paulo. "They all went back to their lives."

The patients enrolled in the study at different times, and so the length of time that they have been free of the need to take insulin also differs.