

## Low-cost vaccine could reverse juvenile diabetes

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A low-cost tuberculosis vaccine that's been in use for decades could get new life as a treatment for juvenile diabetes -- with preliminary research showing it could reverse the disease.

A group of Boston scientists have been testing bacillus Calmette-Guerin (BSG), a vaccine used for more than eight decades to prevent tuberculosis, on people with Type 1 diabetes, also called juvenile diabetes.

At only \$15 per dose, and with minor side effects, the vaccine may offer hope of an insulin-free future to many with the disease.

In patients with autoimmune or juvenile diabetes, immune system cells enter the pancreas and destroy insulin-producing cells. Patients take daily insulin injections to regulate their blood sugar levels.

In the recent experiment, scientists gave six long-term diabetics two injections of BCG each over a month, hoping it would eliminate the white blood cells targeting the pancreas. Another group of subjects was given a placebo vaccine, and all patients were subject to weekly blood tests over the next twenty weeks.

Five months later, blood tests of those given the shots -- who had previously been on insulin for about 15 years -- showed their bodies were producing small amounts of insulin on their own.

"We started to see the drug (doing) what we wanted it to do," said researcher Dr. Denise Faustman of the Massachusetts General Hospital, calling the results "pretty surprising for early clinical trials."

"(These are) early signs the pancreas may regenerate. We may have found a promising way to remove the bad white cells to start the process of disease reversal," said Faustman, whose team presented their research to the annual meeting of the American Diabetes Association in San Diego.

"Insulin was restored for about a week in the majority of patients, from no levels to levels that were statistically significant. That means we are going in the right direction."

But she emphasizes that while the results are encouraging, they are preliminary.

"This is not people treated throwing their insulin syringes in the wastebasket. But this is early signs the pancreas may regenerate. We may have found a promising way to remove the bad white cells to start the process of disease reversal," she explained.

The results come on the heels of an equally encouraging test in diabetic mice. Many in the health-care community are eager for more research in this area.

"One needs to sit up and take notice of new work they have done," pediatrician and diabetes expert Dr. Dennis Danneman of Toronto's Hospital for Sick Children told CTV News. "It doesn't mean it will be translated into a cure for diabetes but it is a path worth going down to study more."

Researchers hope to begin a larger study, and are designing the trial to meet U.S. Food and Drug Administration approval. They are also raising funds for the study, which does not have drug company sponsorship because it focuses on a generic drug.

*With a report by CTV's medical specialist Avis Favaro and producer Elizabeth St. Philip*