

Science, hope for adults with type 1 diabetes focus of JDRF's Annual Global Diabetes Research Forum

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Research shows some type 1 adults have beta cells, live complication-free even 50 years after diagnosis

Research findings and innovative approaches offer the promise of new therapies and the potential for cures for adults living with type 1 diabetes, according to researchers at the Juvenile Diabetes Research Foundation's (JDRF's) Global Research Forum in Washington D.C.

Type 1 diabetes is an autoimmune disease that results in the destruction of insulin-producing beta cells in the pancreas. It renders people insulin-dependent for life and carries the constant threat of debilitating and life-threatening complications. Half of those diagnosed each year with type 1 diabetes are adults. Overall, adults with diabetes may have lived with the disease for more than 90% of their lives.

Still Capable of Producing Insulin

Among the research presented at the JDRF conference were insights of the Medalist Study from the Joslin Diabetes Center in Boston. George King, MD, Senior Vice President, Director of Research at the Joslin Center and director of the study, said that individuals with established type 1 diabetes (even those who have lived with it for 50 years or more) are still capable of producing insulin. The Joslin Study also found that even after 50 years about 30% of the patients studied didn't experience common complications such as eye, kidney or nerve disease. These

findings have potential implications for improved treatment for all type 1 diabetes sufferers.

Potential for Islet Cell Regeneration

Mark Atkinson, M.D., Director of The Diabetes Center of Excellence at the University of Florida, presented initial findings from nPOD; the Network for Pancreatic Organ Donors with Diabetes. Organized and funded by JDRF, the network was established last August to procure and characterize, in a collaborative manner, pancreatic and related tissues from organ donors with long-standing type 1 diabetes as well as those who are islet autoantibody positive. These tissues would be used to study how type 1 diabetes develops with the hope of finding a means to cure the disease.

Dr. Atkinson presented findings from nPOD, which have enabled researchers to assess the potential for islet cell regeneration. "Contrary to common dogma, what we've learned so far is that some pancreata from subjects with long-standing type 1 diabetes have insulin positive beta cells and some have many intact islets. This finding gives hope for islet cell regeneration or restoration," Atkinson noted. He pointed out another key finding: that some islets have beta cells that don't produce insulin. "If we know beta cells are there, then we can focus on finding ways to get them to produce insulin," Dr. Atkinson explained.

JDRF's Chief Medical Officer, Paul Strumph, MD, also presented findings that showed how beta cell mass expands in response to increased metabolic demands such as growth during the first decade of life, obesity, and pregnancy - leading to possible therapeutics that mimic the biological mechanisms that increase insulin-producing cells in this instances. "A little bit of insulin is not a cure, but it can be significant to reduce the complications of diabetes," Strumph noted.

A New Era of Diabetes Research Has Begun

All of the presenters agreed that researchers are on the cusp of a new era in diabetes research, one in which advanced technology and human clinical research should enhance the development of new therapeutics and an ultimate cure.

"Much of what we've known regarding the pathogenesis of type 1 diabetes has dated back to studies performed with the human pancreas' in the 1970s -- before microwaves, the internet and cell phones, and before modern day medical research technology. Now we're looking at this disease in whole new ways," explained Atkinson.

Strumph added that there is more of an emphasis on looking at the natural history of the disease to guide research opportunities for those with established type 1 diabetes. JDRF is currently devoting a significant portion of its \$160 million in research funding to science involving people with established type 1 diabetes, with a particular emphasis on areas such as autoimmunity and regeneration; the organization and plans to fund as much as \$195 million on research in the coming 12 months.

Source: Juvenile Diabetes Research Foundation International

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