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Perspective

Efficacies of Stem Cell Therapy in Type 1 Diabetes and Properties in Stem Cells

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DESCRIPTION

Stem cell therapy may provide relief from Type 1 diabetes symptoms for those who are experiencing them. Receiving stem cell therapy for Type 1 diabetes from TruStem Cell Therapy (TSCT) has the potential to dramatically enhance a patient's quality of life by lowering symptoms and consequences associated with the condition as well as slowing its progression, despite the fact that it cannot be cured. Improvements in any one or more disease-related problems, such as blood sugar stabilization, blood sugar reduction, frequent urination, exhaustion, inadequate wound healing, etc., may be seen in patients getting stem cell diabetes treatment. Researchers studying stem cells describe a cell therapy that can rejuvenate and induce a pancreas that is diabetes to manufacture insulin.

This, according to experts at the National Institute for Research in Reproductive Health (NIRRH) in Mumbai, improves the chances that cell therapy would successfully treat diabetes on a long-term basis.

Diabetes is caused by the loss of "beta" cells in the pancreas, which produce insulin, a hormone that lowers blood sugar levels. Patients with diabetes must administer insulin injections continuously. The goal of stem cell researchers around the world has been to develop a cell therapy that can induce insulin production in diabetics by their pancreas. Stem cells are being used in continuing research to assist us in examining the complex mechanisms by which our bodies digest sugar and providing critical insights into the underlying causes of diabetes.

Why does the immune system start attacking beta cells in Type 1 diabetes but no other cells in the pancreas or in other organs or tissues?

Beta cell production from Induced Pluripotent Stem (IPS) cells and Embryonic Stem Cells (ESCs) has advanced significantly in recent years. Laboratory research helps us comprehend illness development, potential genetic origins, and patient similarities and differences. With the use of this knowledge, researchers are working to identify patients more quickly, stop the progression of the disease, and treat diabetes more successfully.

We have the strongest chance of success since the Harvard Stem Cell Institute (HSCI) has put together an inter-institutional team of specialists in the disciplines of stem cells and diabetes that have a track record of ongoing and successful collaboration. Researchers at HSCI will be able to evaluate whether cells from a specific T1D patient always result in T1D or whether specific environmental factors may also be necessary for the development of T1D using this new T1D mouse model. The model will also show whether there are various subtypes of T1D, or whether all individuals who initially arrive with T1D have the same condition.

CONCLUSION

The project will take several years to complete because they are expensive and time-consuming experiments. However, with a team of experts in place, even a partial success would be a big step forward for the T1D community and biomedical research. Embryonic *in vitro* and *in vivo* differentiation of stem cells can produce a variety of specialized cell types. ES cells are pluripotent and are isolated from the blastocyst stage of the embryo. In comparison to adult stem cells, their adaptability is strength but potentially a drawback.

Although ES cells can produce insulin in culture, they are less stable than adult stem cells. Tumor cells can develop from ES cells that have been studied in *in vitro* and *in vivo*. When evaluating claims of success in the use of stem cell and/or gene therapy for diabetes, we have proposed that "The Seven Pillars of Credibility" be satisfied.

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