

Bone marrow cells produce nerve growth factor and promote angiogenesis around transplanted islets

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Islet transplantation is a promising treatment for type 1 diabetes mellitus. The promotion of angiogenesis is an important endeavor to prevent islet graft failure. Endothelial precursor cells (EPCs), a heterogeneous group originating in the hematopoietic compartment of bone marrow, have an important role in the angiogenesis of adult tissues.

Transplanted EPCs induce hypoxia-inducible factor-1 α (HIF-1 α) under hypoxic conditions which leads to upregulation of vascular endothelial growth factor (VEGF) and promotes vascularization. Nerve growth factor (NGF), which plays an important role in promoting growth, differentiation and function of nerve cells has been shown to have an important role in angiogenesis by stimulating VEGF. Moreover, NGF is secreted by islets and may have a beneficial effect on islet function.

This research, lead by Dr. Eba Hathout and her colleagues in Loma Linda University School of Medicine, has recently published on March 14, 2010 in the *World Journal of Gastroenterology*. They focused on NGF levels and its effects to clarify the mechanism of angiogenesis brought by bone marrow cell transplantation.

They found that NGF may have a role in islet transplantation by promoting angiogenesis and preventing hypoxia at the early post-transplant period. However, this remains to be tested and reproduced in appropriate trials.

More information: Sakata N, Chan NK, Chrisler J, Obenaus A, Hathout E. Bone marrow cells produce nerve growth factor and promote angiogenesis around transplanted islets. World J Gastroenterol 2010; 16(10): 1215-1220. www.wjgnet.com/1007-9327/full/v16/i10/1215.htm

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