

## Autologous bone marrow-derived mononuclear cell transplants can reduce diabetic amputations

## April 18 2012

Autologous (self-donated) mononuclear cells derived from bone marrow (BMMNCs) have been found to significantly induce vascular growth when transplanted into patients with diabetes who are suffering from critical limb ischemia caused by peripheral artery disease (PAD), a complication of diabetes. The team of researchers in Seville, Spain who carried out the study published their results in a recent issue of *Cell Transplantation* (20:10), now freely available on-line.

"Critical limb ischemia in diabetic patients is associated with high rates of morbidity and mortality; however, neovascularization induced by stem <u>cell therapy</u> could be a useful approach for these patients," said study corresponding author Dr. Bernat Soria of the Andaluz Center for Biologic and Molecular Regenerative Medicine in Seville, Spain. "In this study we evaluated the safety and efficacy of inter-arterial administration of autologous bone marrow-derived <u>mononuclear cells</u> with 20 diabetic patents with severe below-the-knee arterial ischemia."

The researchers noted that surgical or endovascular revascularization options for patients such as those in the study are limited because of poor arterial outflow. Although optimum dose, source and route of administration were outstanding questions, proper BMMNC dose for best results was an issue that the researchers hoped to clarify. They subsequently used a dose ten times smaller than other researchers had used previously in similar studies.



According to the authors, the rationale for their study was that intraarterial infusions of autologous BMMNCs contain endothelial progenitors that are locally profuse at severely diseased vascular beds in the lower limb. Their hope was that the BMMNCs could promote early and effective development of new vascularization.

Patients were evaluated at three months and twelve months posttransplantation.

"As previously reported, the one-year mortality rate for diabetic patients with PAD - most of which are associated with cardiac complications has been found to be 20 percent," explained Dr. Soria. "Our study documented significant increases in neovasculogenesis for the majority of our study patients and a decrease in the number of amputations. However, overall PAD mortality for our patients was similar to that generally experienced."

The researchers concluded that BMMNC therapy for <u>lower limb</u> ischemia was a "safe procedure that generates a significant increase in the vascular network in ischemic areas" and promotes "remarkable clinical improvement."

"While this study did not demonstrate a significant effect on mortality, it does suggest an improvement in the quality of life based on limb retention as shown by the significant reduction in the number of amputations", said Amit N. Patel, director of cardiovascular <u>regenerative</u> <u>medicine</u> at the University of Utah and section editor for <u>Cell</u> <u>Transplantation</u>.

Provided by Cell Transplantation Center of Excellence for Aging and Brain Repair



Citation: Autologous bone marrow-derived mononuclear cell transplants can reduce diabetic amputations (2012, April 18) retrieved 27 April 2024 from <a href="https://medicalxpress.com/news/2012-04-autologous-bone-marrow-derived-mononuclear-cell.html">https://medicalxpress.com/news/2012-04-autologous-bone-marrow-derived-mononuclear-cell.html</a>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.