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VASCULAR DISEASE

AUTOLOGOUS BONE-MARROW MONONUCLEAR CELLS AMELIORATE SYMPTOMS BY ENHANCING PERFUSION INDICES IN PATIENTS WITH END-STAGE PERIPHERAL ARTERIAL DISEASE

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

Sunday, April 03, 2011, 3:30 p.m.-4:45 p.m.

Session Title: Lower Extremity Peripheral Arterial Disease

Abstract Category: 11. Peripheral Arterial/Carotid Disease/Aortic Disease

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Background: Chronic critical limb ischemia (CLI) is an increasing cause of morbidity and mortality in patients with peripheral arterial disease (PAD). Despite the marked advances in surgical and endovascular techniques, a substantial part of patients with CLI is not eligible for revascularization. We sought to evaluate the effect of autologous bone marrow mononuclear cells (BM-MNCs) on symptoms and perfusion indices in patients with end-stage CLI.

Material and Methods: Bone marrow from crista iliaca was harvested in analgesia in symptomatic CLI patients and mononuclear cells were isolated by the Ficoll™ density gradient method. BM-MNCs were implanted into the index leg by means of combined intraarterial and multiple intramuscular injections. Pain, total walking distance, ankle-brachial index (ABI) and transcutaneous O₂-pressure (TcPO₂) were recorded at baseline and at 6 weeks after the procedure.

Results: A total of 16 patients (4 female, mean age: 61±14) were treated. From the BM-aspirate (317±61 ml), a total of 4.9±2.4 x10⁸ mononuclear cells were isolated. Results of ABI, TcPO₂, total pain-free walking distance and pain score at baseline and at 6 weeks follow-up are presented in the table.

Conclusion: Autologous BM-MNC therapy in end-stage PAD patients reduces symptoms by improving perfusion indices. If this beneficial effect can be confirmed by randomized control trials, BM-MNC therapy could serve as an additive therapeutic option for end-stage PAD patients.

Table:

Parameter	Baseline	6 weeks after BM-MNC therapy	P-value
ABI	0.43±0.12	0.56±0.11	<0.01
TcPO ₂	14±8	35±10	<0.01
Total walking distance	52±45	358±360	<0.01
Pain Score	5.1±2.2	2.7±2.5	<0.01