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Use of Bone Marrow derived Stem Cells in Patients with Cardiovascular Disorders

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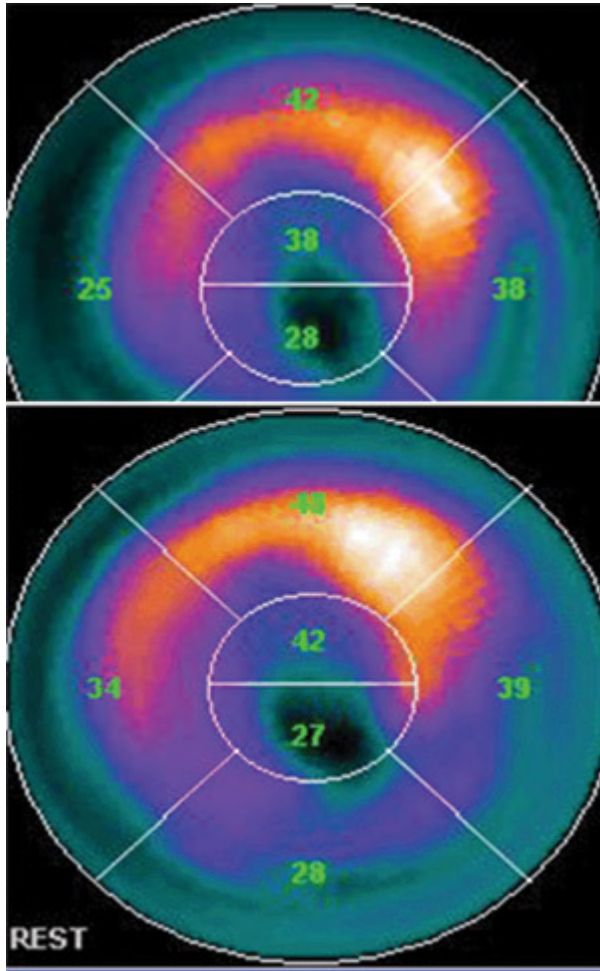
Patients with end stage heart failure have very few treatment options. The long waiting times for transplant and the complications associated with immunosuppression has led to the search for alternatives. Subsequent to the isolation and characterization of stem cells, tremendous advances have been made and the safety and feasibility of autologous bone marrow derived stem cells has been proven in preclinical studies. Clinical studies have also shown mobilized cells repair the infarcted heart, improving function and survival. We have started a clinical study to evaluate the efficacy of bone marrow derived stem cells. Bone-marrow was aspirated from the right iliac crest and the stem cells were isolated by density gradient method and suspended according to the mode of delivery.

From Jan 2007 till date 10 patients (8 adults, 2 children, age) with end stage cardiovascular disorder of varied etiology (Ischemic left ventricular dysfunction - 6 patients, Primary pulmonary hypertension - 2 patients, Dilated cardiomyopathy -1 patient, Biventricular non-compaction -1 patient) underwent stem cell

therapy. All patients were evaluated and cardiac function was measured by using echocardiography and thallium scintigraphy. There were no procedure related complications. These patients are being regularly followed-up and one patient who has completed 6-month follow-up has shown improvement in perfusion as well as increase in ejection fraction of 10%. Stem cell therapy in patients with end-stage cardiovascular disorder might be a promising tool by means of angiogenesis and other paracrine mechanisms.

Image:

Nuclear study images of one of the patients included in the study. The upper one before and lower one six months after the injection.



The Ejection fraction was 16% (Pre-treatment image on top) which increased to 22% after Autologous Bone Marrow Stem Cell Therapy (Post-treatment-bottom image) according to the author.