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## Utility of autologus bone marrow stem cells for treatment of chronic leg ulcer

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Chronic leg ulcer is a major health problem which may associate different diseases as vascular, neoplastic, infectious diseases and trauma as well. The patients suffer from many complications as infection, septicemia, psychology troubles and physical inability leading to many economic troubles the last line of treatment is amputation with its high rate of morbidity and mortality. Optimum healing of a cutaneous wound requires a well-orchestrated integration of the complex biological and molecular events of cell migration and proliferation, and of extracellular matrix deposition and remodeling. Several studies in recent years suggest that bone marrow derived stem cells such as hematopoietic stem cells cell progenitors, mesenchymal stem cells, multi-potent stem cells, progenitor cells such as endothelial progenitor cells and fibrocytes may be involved in these processes, contributing to skin cells or releasing regulatory cytokines. Progenitor cells such as endothelial progenitor cells into injured tissues shows improved repair through mechanisms of differentiation and/or release of paracrine factors. Enhanced understanding of these cells may help develop novel therapies for difficult cutaneous conditions such as non-healing chronic ulcers and hypertrophic scarring as well as engineering cutaneous substitute.

Aim of the work: The study design was randomized clinical trial attempt to assess the potential treatment of chronic leg ulcer through the use of the autologous bone marrow stem cells.

**Patients and methods:** Fifty patients with chronic leg ulcer were included from vascular surgery department Tanta University Hospital. Patients were divided randomly into two equal groups each group included 25 patients. In group I, the patients were subjected to autologous transplantation of bone marrow derived CD34+ mononuclear cells into the depth and around the ulcer. In group II (control group), saline dressing to the leg ulcer was done.

**Results:** In group I, 14 patients were males and 11 were females, age ranged from 19 to 66 years with mean age of 48.7 y while in group II, 13 patients were males and 12 patients were males with mean age of 51.2 years and age ranged from 21 to 63 years. In group I, the follow up period ranged from 6 to 24 months. Complete ulcer healing occurred in 12 patients (48%), partial ulcer healing in 10 patients (40%) and no healing in 3 patients (12%). In group II, the follow up period ranged from 8 to 24 months. Complete ulcer healing in 3 patients (12%) and no healing in 2 patients (80%). In group I, the overall patients satisfaction and pain relief was found in 18 patients (72%) while in group II only 4 patients (16%).

**Conclusion:** Autologous transplantation of bone marrow derived CD 34+ mononuclear cells is a simple, safe and effective modality of treatment for chronic leg ulcer.

## Biography

Said M H Abdou is the Professor of Clinical Pathology, Department of Clinical Pathology, Faculty of Medicine, Tanta University. He is leading a group working on preclinical and clinical trials on the utility of stem cells in treatment of chronic leg ulcer and chronic leg ischemia. His team also focuses on the use of stem cell based therapy for treatment of end stage liver disease, alopecia areata and treatment of chronic obstructive lung disease. His lab activities during the last 10 years have been dealing with examination of all types of biological human samples hematology and biochemistry to help diagnosis and treatment of patient's diseases including genetic disorders. He is collaborating with several national and international researchers focusing on the utilization of stem cells for therapy against leg ischemia in animal models as well as against cancer immunotherapy.

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