

CLINICAL EXPERIENCE OF STEM CELL THERAPY FOR DIABETIC FOOT ULCER

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Diabetes mellitus (DM) incidence increased gradually. There is an alarming increase in the macro- and microvascular complications secondary to DM, in which Diabetic foot ulcer (DFU) is one of the most common complications, Diabetic foot ulcer (DFU) is a severe complication of diabetes, preceding most diabetes-related amputations.

Diabetic foot ulcer occurs in the setting of ischemia, infection, neuropathy, and metabolic disorders that result in poor wound healing and poor treatment options. Recently, stem cell therapy has emerged as a new interventional strategy to treat DFU and appears to be safe and effective in both preclinical and clinical trials.

Stem cells are a promising treatment for DFUs as they are capable of targeting, as well as bypassing, the underlying abnormal healing mechanisms and deranged cell signaling in diabetic wounds and promote healing.

The three phases of normal wound healing are well known. They are the inflammatory phase, the proliferative phase and the remodelling phase. There are some changes in the chronic wound in each of these phases. In the inflammatory phase, there is a decrease in the functional capacity of neutrophils and macrophages and there is an increase in the production of matrix metalloproteinases (MMPs), which can be highly tissue destructive. Growth factors are released slowly or halted. This results in a generalised slowing of the entire inflammatory process, and often in a chronic wound. Stem cells can be a great aid to healing chronic wounds. Normal wound healing requires the coordinated communication among cells, growth factors and extracellular matrix proteins within the extracellular matrix. Stem cells and stem cell activators are central in this process as they allow for a coordinated repair response.

We conduct stem cell and growth factor therapies for the treatment of diabetic foot ulcers in diabetics who are not well controlled in their blood sugar levels. The therapeutic results found an improvement in diabetic foot ulcer.

Keyword: Diabetic foot ulcer, stem cell, growth factors