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REVIEW ARTICLE

Mesenchymal Stem Cell Therapy- A Promising Treatment for Wound Healing in Diabetic Patients

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ABSTRACT:

Background: Stem cells have been found to accelerate wound closure, promote tissue regeneration, and modulate the inflammatory response in diabetic wounds. Mesenchymal stem cells release growth factors and cytokines that stimulate angiogenesis, collagen synthesis, and the recruitment of immune cells, all essential processes in wound healing. Additionally, they possess immunomodulatory properties, reducing chronic inflammation often seen in diabetic wounds. **Method:** Published articles from indexed scientific journals on Stem Cell Therapy that were found to be relevant were chosen. The selected papers were analyzed for both quantitative and qualitative information on Stem Cell Therapy for Diabetic Patients. The compiled information was organized in a sequential manner for the understanding of the basics of Stem Cell Therapy in Diabetic Patients. Our research turned up articles considering the benefits and drawbacks of stem cell therapy. **Result:** Based on the findings of these articles, we would like to add that, although there are still many unanswered questions about long-term safety and standardized protocols, stem cell therapy has enormous potential. Stem cell therapy presents a glimmer of hope for those suffering from non-healing wounds, since it may be able to avoid amputation and enhance overall quality of life. **Conclusion:** It is possible to enhance wound healing through the application of various stem cell modifications, co-cultures, and scaffolds. Further research is required to ascertain the molecular workings of stem cells and to raise their therapeutic effectiveness in clinical practice.

KEYWORDS: Mesenchymal stem cells (MSC), Diabetes, Wound healing, Stem cell therapy.

INTRODUCTION:

Wound healing is described as a process in which inflammation and remodelling go hand in hand to reconstruct the dermal and epidermal layers of the skin. The usual wound healing process falls short of fully restoring skin function in pathological conditions such as diabetes or severe burns, raising the risk of life-threatening infections or ulcers¹. The healing process typically begins with haemostasis, which serves to control blood loss and prevent microbes from invading the wounded area.

This is swiftly followed by an inflammatory phase, where neutrophils, which are pro-inflammatory cells, are initially up-regulated and later followed by macrophages that remove debris and pathogens, as well as growth factors and other cytokines and cells. The proliferative

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