

Potential Biomolecules and Current Treatment Technologies for Diabetic Foot Ulcer: An Overview.

Khashim Z¹, Samuel S², Duraisamy N¹, Krishnan K¹.

Abstract

BACKGROUND: Diabetic foot ulceration remains a major challenge and is one of the most expensive and leading causes of major and minor amputations among patients with diabetic foot ulcer. Hence the purpose of this review is to emphasize on potential molecular markers involved in diabetic foot ulcer physiology, the efficacy of different types of dressing materials, adjunct therapy and newer therapeutic approach like nanoparticles for the treatment of diabetic foot ulcer. **METHODS:** We conducted a systematic literature review search by using Pubmed and other web searches. The quality evidence of diabetic foot ulcer biomolecules and treatments was collected, summarized and compared with other studies. **RESULTS:** The present investigation suggested that impaired wound healing in diabetic patients is an influence of several factors. All the advanced therapies and foot ulcer dressing materials are not suitable for all types of diabetic foot ulcers, however more prospective follow ups and in vivo and in vitro studies are needed to draw certain conclusion. Several critical wound biomolecules have been identified and are in need to be investigated in diabetic foot ulcers. The application of biocompatible nanoparticles holds a promising approach for designing dressing materials for the treatment of diabetic foot ulcer. **CONCLUSION:** Understanding the cellular and molecular events and identifying the appropriate treatment strategies for different foot ulcer grades will reduce recurrence of foot ulcer and lower limb amputation.

KEYWORDS: Diabetic foot ulcer; adjunct therapy; biomolecules; foot ulcer dressing materials; inflammatory; nanoparticles.

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