

The Application of Topical Oxygen Therapy in treatment of diabetic foot Ulcer

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Introduction

Diabetes Mellitus poses threat to many vital organs in body among which most common is diabetic foot ulcers, in many cases leading to limb amputation. Various research articles suggest benefits of topical oxygen therapy in management and better prognosis of diabetic foot ulcers, improving patient's lifestyle and reducing misery.

Objectives

The objective of this systemic review is to focus on variable evidences available for the purpose of knowing the benefit of using topical oxygen therapy in management of diabetic foot ulcers.

Discussion

Oxygen levels below 20mm Hg seen in chronic avascular wounds impair wound healing but it is observed that higher oxygen levels such as above 160 mmHg induces fibroblast proliferation, enzyme activation, enhanced protein synthesis improves wound healing and wound debridement. 50% oxygen concentration is essential for diabetic foot ulcer healing. Topical oxygen therapy is cost effective, user friendly, can be easily used at homes, has minimal complications in comparison to hyperbaric oxygen therapy. The mentioned studies and reports indicate that low grade ulcers heal completely while reduction in size is often observed in high grade, deep and chronic ulcers as they require administration of ample amount of topical oxygen therapy for longer durations.

Topical Oxygen therapy improves wound healing via induction of fibroblast proliferation, increasing protein synthesis; aiding in wound healing and protecting people from undergoing limb amputation that severely destroys quality of life. Topical oxygen therapy has been proven substantially useful and improved quality of life of diabetic patients.

Materials and Methods

This systemic review was conducted in accordance with PRISMA(Pubmed / Medline, Science Direct, Web of Science, Scopus database) to find the context and evidence supporting efficacy and use of Topical Oxygen therapy in foot ulcers healing from past data to current reports and evidences. The review comprises of 2 randomized controlled trials , 1 clinical trial and 1 case control study.



Results

The systemic review includes 4 studies, that indicate complete resolution of low-grade, small diabetic foot ulcers and quite pronounced reduction in the size of chronic, long-lasting high-grade diabetic foot ulcers with the application of topical oxygen therapy.



Conclusion

The given reviews and studies conclude and provide adequate evidence for the treatment of various grades of acute and chronic diabetic foot ulcers, shown as reduction in ulcer size and good wound healing with the proven benefits of topical oxygen therapy.

References

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