

Role of Hyperbaric Oxygen Therapy in Ischaemic, Diabetic, Lower-extremity Ulcers: a Double-blind Randomized Controlled Trial

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Background:

Some 14-24 per cent of diabetic patients with ischaemic lower-extremity ulcers will require an amputation. Despite much effort toward the prevention of amputation in the past decade, the incidence of lower-extremity amputation in such patients continues to rise. This study is aimed to evaluate the role of hyperbaric oxygen therapy in the management of this group of patients.

Methods:

Eighteen diabetic patients with ischaemic, nonhealing lower-extremity ulcers were recruited in this double-blind study. Patients were assigned randomly to receive either 100 per cent oxygen (treatment group) or air (control group), at 2.4 atmospheres of absolute pressure for 90 min daily, for a total of 30 treatments. Wound surface areas were measured at baseline and then at 2, 4, 6 and 12 weeks, and 6 months.

Results:

At 12 weeks, healing with complete epithelialization was achieved in 13 of 19 ulcers in the treatment group compared with only four of 14 ulcers in the control group ($P=0.024$, $[\chi^2]$ test). In the incomplete epithelialized ulcers a significant decrease in the wound area in the treatment group was noted 83 per cent and that in the control group was 56 per cent ($P=0.021$, Mann-Whitney U test). There was no difference in major amputation rate between the two groups.

Conclusion:

Hyperbaric oxygen therapy enhanced the healing potential of ischaemic, non-healing, diabetic leg ulcers and should be used as a valuable adjunct to conventional therapy when reconstructive surgery is not possible.

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