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Transcutaneous oxygen pressure, Vibration perception threshold and shortened neuropathy symptom score and presence of a foot ulcer in the diabetic foot before and after Hyperbaric Oxygen therapy.

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Background

Hyperbaric oxygen has been shown to improve the rate of wound healing patients with diabetic foot ulcers and to improve transcutaneous oxygen pressure during treatment. Little information exists about the prolonged action of hyperbaric oxygen.

This aim was to measure, compare and evaluate changes in tissue perfusion using transcutaneous oxygen pressure as an indicator, neuropathy symptom score, vibration perception and healing of the foot ulcer after before and after hyperbaric oxygen therapy in a group of patients with diabetic foot disease.

Subjects and methods:

Subjects were referred from the Diabetes Centre at Derriford Hospital, Plymouth. All patients had diabetic foot disease resistant to conventional therapy. Transcutaneous oxygen pressure at the dorsum of the foot was measured in four subjects immediately prior to Hyperbaric Oxygen therapy and immediately after therapy had stopped. Vibration perception threshold at the most distal part of the foot, a shortened neuropathy symptom score was completed and the presence of the foot ulcer noted at each evaluation.

Results:

The data shows that all patients had a foot ulcer at the start of HBO therapy and at the completion of therapy. There was no significant difference in transcutaneous oxygen pressure before and after therapy (p value 0.835). There was no significant difference in vibration perception threshold (p value 1.00) There was no significant difference in neuropathy symptom score (p value 0.190)

Conclusions:

Hyperbaric oxygen in this small group of patients did not show any improvement in neuropathy symptoms or clinical evaluation of neuropathy.

Tissue perfusion, measured by transcutaneous oxygen pressure did not show any significant improvement. All patients still had a foot ulcer although the progression of the wound healing has not been measured.