

## P4

### Effects of Hyperbaric Oxygen on Transcutaneous Oxygen Measurement < Vibration Perception and Resolution of Foot Ulcers over a Three Month Period

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**Background and aims:** Hyperbaric oxygen (HBO) has, in some studies, been shown to improve the rate of wound healing in patients with diabetic foot ulcers and to improve transcutaneous oxygen pressure during treatment. Little information exists about the prolonged action of hyperbaric oxygen when treating Diabetic foot wounds. In this centre Transcutaneous oxygen measurement (TCPO<sub>2</sub>) is used as an indicator of tissue perfusion. This study aimed to measure, compare and evaluate changes in TCPO<sub>2</sub>, neuropathy and wound resolution before and after HBO in a group of patients with diabetic foot disease. **Patients and methods:** Subjects with diabetic foot ulcers were selected for HBO when they had failed conventional therapy, had no reconstructable vascular disease and after optimisation of glycaemic control. 9 patients completed the study having between 6-40 exposures to HBO over the study period. Three evaluations were made 1) immediately prior to HBO, 2) immediately after the course of HBO and 3) one month after treatment had stopped. Neuropathy symptom score was completed at each evaluation and the presence of the foot ulcer noted. Comparisons of the data were made with two patients who had diabetic foot ulcers but who did not undergo HBO. An increase of 10mmHg was deemed a significant improvement in TCPO<sub>2</sub>. A reduction of 10Volts measured with a neurothesiometer or an improvement in neuropathy symptom score of 2 was deemed to represent an improvement in neuropathy. **Results:** No significant difference was shown in TCPO<sub>2</sub> measurement (Freidman,s test p=0.641), Vibration Perception Threshold (Wilkes Lambda test p=0.938) or Neuropathy Symptom Score (Freidmans test p= 0.756). No wounds resolved in the HBO group. Wound resolution occurred in one of the patients who did not undergo HBO . There was no significant difference in the TCPO<sub>2</sub>of the group having HBO compared with the two patients who did not undergo HBO (Mann Whitney U, p= 0.156). **Conclusions:** The study failed to produce evidence of an increase in TCPO<sub>2</sub>, change in neuropathy or wound resolution after HBO therapy. This conclusion is limited by the small numbers of subjects and the lack of randomisation or of a proper control group.