0051: TO EVALUATE THE EFFECT OF HYPERBARIC OXYGEN THERAPY ON THE HEARING OUTCOME IN PATIENTS WITH SUDDEN SENSORINEURAL HEARING LOSS

S. Agrawal*, N. Sharma, N. Banerjee. PGIMER & Dr. Ram Manohar Lohia Hospital, India

Aim: To ascertain whether the addition of HBOT to conventional medical treatment improves hearing outcome in patients with Sudden SNHL, to assess the impact of patient-related and audio vestibular parameters on prognosis, to document any adverse effects of HBOT.

Methods: 40 patients with Sudden SNHL, 18–60 years, were enrolled. 20 patients (Group A) received steroids, plasma expander, gingko biloba, nicotinic acid, betahistine, and antiviral. 20 patients (Group B) received the above with HBOT (10 sessions). Audiological assessments were performed with pure tone audiometry on day 5,10, at each month’s end, for 3 months. Following parameters were noted: demographics (age, gender); tinnitus; vertigo; time between onset of loss and initiation of treatment; severity of hearing loss. Hearing outcomes were evaluated by four indices: cure rate, marked recovery rate, recovery rate, and hearing gain.

Results: Mean hearing gain was 31.5 ± 20.0 dB in Group B, which was higher than in Group A, 16.8 ± 17.5 dB (p = 0.018). Marked recovery rate was higher in Group B (50% vs 20%; p = 0.047). Patients treated within first seven days of onset showed higher hearing gains and marked recovery rates. Cure rate was higher in patients without vertigo (19% vs 0%; p = 0.045). 20% patients suffered from adverse effects of HBOT, most common being otitis media.

Conclusion: Addition of HBOT to conventional treatment significantly improves the outcome of sudden deafness; its use should be encouraged as an adjunctive therapy. Age, gender, tinnitus, severity of hearing loss did not affect the outcome of sudden hearing loss. Presence of vertigo and initiation of treatment more than seven days after onset were poor prognostic factors. HBOT was a relatively benign intervention.

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0334: OPTIMISATION OF BIOMATERIAL SURFACES FOR NEXT GENERATION NEUROSURGICAL IMPLANTS

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Aim: Neurosurgically implanted electrical devices are used to treat a range of severely debilitating disorders. However, their current use is limited by poor long-term biocompatibility, and thus this research aimed to investigate whether chemical modification was useful strategy in overcoming this.

Methods: Glass and gold substrates were chemically modified using organosilane precursors to produce either methyl (−CH3), amine (−NH2) or thiol (−SH) functionalised surfaces. Contact angle (θ) measurements were performed to validate the modification process and PC-12 cells cultured. Light microscopy and SEM provided information on cell behaviour, whilst cell-based assays were used to quantify metabolic activity and proliferation.

Results: Thiol functionalised surfaces were found to confer significantly greater levels of cell adhesion (p = 0.005), proliferation (p < 0.001),