

SUPPRESSION OF OTOACOUSTIC EMISSION USING SCHROEDER HARMONIC COMPLEXES AS SUPPRESSING STIMULI

Fazlin Binti Suratman¹

¹*affiliation.*

Presenter: Fazlin Binti Suratman, zlynns_93@yahoo.com

Introduction: Medial Olivocochlear Reflex (MOCR) causes inhibition of outer hair cell activity upon noise stimulation and acts as protective mechanism of the ear against noise. MOCR can be recorded through the suppression of Otoacoustic Emission (OAE). The mechanism of MOCR function was still unclear and whether the function is affected by the phase of incoming noise requires further investigation. This research aimed to identify the effect of MOCR activity ; i) at different frequency; ii) when using different phases of Schroeder harmonic complexes as the suppressor noise.

Materials and method: Twenty six normal hearing subjects were recruited. The suppression was analysed by looking at amplitude difference of Distortion Product of Otoacoustic Emission (DPOAE) in the absence of noise and in the presence of noise in contralateral ear, at different tested frequencies (1, 1.5, 2, 3, 4, 6 kHz).

Results: There was significantly higher suppression amplitude for frequency 1-2 kHz compared to higher frequencies ($p < 0.05$). Significant higher suppression was observed when negative phase of Schroeder harmonic complexes (c: -1) was used as suppressing stimuli compared to that of positive phase (c: +1) ($p < 0.05$).

Conclusion: These findings showed that MOCR; i) is enhanced at mid-frequency region, and ii) has the ability to inhibit the outer hair cell active mechanism differently upon stimulation with different phases of noise.