

## **LOCALIZATION ABILITY OF CHILDREN WITH UNILATERAL AND BIMODAL COCHLEAR IMPLANT FITTING**

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The purpose of this study is to investigate the immediate effect of bimodal over unilateral cochlear implantation fitting in localization. Ten prelingual sensorineural hearing loss subjects with chronological age mean 8 years and 9 months old (8;9 years old) participated in the study. All subjects had experiences with Nucleus CI system with ACE speech processing strategy and Nucleus Freedom or Sprint speech processor for 4 to 8 years (durations mean= 5;5 years old). Localization tests were conducted by using three different stimuli (800Hz, 400Hz narrow band noises and /ba/) in quiet and in noise. Stimulus levels typically averaged  $65\pm 4$  dB SPL were randomly presented from 5 loudspeakers positions at  $45^\circ$  angle and 1m distance from the subject. Multitalker babble noise was presented from  $180^\circ$  with reference to the subject giving a +10dB signal-to-noise ratio. Subjects were fitted with powerful hearing aid on the non-implanted ear prior to localization test session. Aided sound-field threshold were conducted using CI alone and bimodal. The aided thresholds for CIHA showed binaural summation in low and mid frequencies compared to CI condition. The results of localization score of CI and CIHA in quiet and noise (SNR+10) testing conditions were obtained. There were four subjects who were able to score better in most of the testing situations by using CIHA. In conclusion, some newly fitted CIHA user was able to obtain binaural advantage in localization.

Yeo, C. H. 2010. Localization Ability of Children with Unilateral and Bimodal Cochlear Implant Fitting. Bachelor of Audiology Thesis. Universiti Kebangsaan Malaysia.