

## **BINAURAL INTERACTION COMPONENTS IN SPEECH-EVOKED AUDITORY BRAINSTEM RESPONSE: A PILOT STUDY**

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### **ABSTRACT**

**Introduction:** Binaural interaction component (BIC) served as an objective measure of binaural hearing function. It has been investigated through click or tone burst auditory brainstem response (ABR) but limited investigation was done using speech-evoked ABR (sABR). This study aimed to investigate the presence of BIC in normal hearing young adults using /da/ stimulus in sABR.

**Methods:** 23 participants aged between 18 and 25 years old participated in this study. sABR was conducted and BIC was mathematically derived by subtracting the binaural evoked responses from the sum of monoaural evoked responses, ie  $BIC = (Right + Left) - Binaural$ . BIC obtained was analysed descriptively.

**Results:** BIC-V, BIC-A, BIC-D, BIC-E, BIC-F and BIC-O were detected in 80%, 40%, 70%, 70%, 55% and 50% of the subjects. The small amplitude of response peaks especially Peak A (mean:  $0.061\mu V$ ; SD: 0.053), Peak F (mean:  $-0.087\mu V$ ; SD: 0.072) and Peak O (mean:  $-0.114\mu V$ ; SD: 0.054) bewildered the visual detection of the peaks.

**Conclusions:** BICs were not consistently recordable in subjects with normal hearing. The modifications of the filter and objective analysis of the response peaks were required to enhance the reliability of the test. In conclusion, this test served as a preliminary study for future BIC studies.

**KEYWORDS:** Binaural interaction component (BIC), auditory brainstem response (ABR), speech stimulus

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