

Comparison of Ipsilateral and Contralateral Recording in Brain-stem Evoked Response Audiometry*

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The present study was conducted to compare the ipsilateral and contralateral tracing of BSERA for AC logon stimuli.

20 subjects with normal hearing in the age group of 17 to 25 years were selected for the purpose of study. The frequency under test was 2 KHz. The scale was set to 2,048 samples and, 2 μ V/Div. Rate of presentation of stimuli was kept constant at 20/sec. A sample time of 10 msec was chosen. AC logon stimuli was presented at 100 dB, 80 dB and 60 dB respectively. The test environment was identical for both ipsilateral and contralateral recordings.

For II peak ipsilateral and contralateral tracing, no significant difference was observed.

For III peak ipsilateral and contralateral tracing, no significant difference was observed.

For IV and V comparison in ipsilateral and contralateral tracing, no significant difference was observed at 100 dB, 80 dB and 60 dB (ipsilateral and 100 dB contralateral). But at -05 level significant difference was observed at 80 dB and 60 dB contralateral tracings.

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Implication of the Study

The principal advantage of recording ipsilateral and contralateral responses simultaneously in adults is that there is a general correspondence between waveforms from the two derivations which allows the relatively minor changes that occur to be helpful in differentiating components.

There are several possible explanations for the lack of similarity between neonatal ipsilateral and contralateral recordings as compared to adults. The intensity of the stimulus reaching the contralateral cochlea differs from that presented to the test ear by an amount known as the interaural attenuation (IA). The lower the IA the greater the likelihood of eliciting a response from the contralateral cochlea. The IA of neonate may differ from the adults. It is also possible that the generators differ for the two populations.

The contralateral responses showed minor but predictable differences from ipsilateral response. In the contralateral recordings wave I is greatly reduced in amplitude. Wave III is smaller in amplitude. Wave V latency is usually about +1 msec to -2 msec. later thereby increasing the wave IV to wave V latency interval and allowing independent resolution of the two peaks which

are frequently fused in the ipsilateral recordings.

The results agree with Edward (1985) results.

The BSERA decs appear to be a powerful tool for diagnosis of acoustic neuroma. Contralateral and ipsilateral recordings as indicated by research have their own place in the technique of BSERA.

It can be concluded that comparison of ipsilateral recording with contralateral

recording are vital in clinical application of BSERA.

Limitations

The present study was limited to a single frequency 2 KHz and AC logon stimuli of 100 dB, 80 dB and 60 dB. The developmental course of the contralateral response is not known. The usefulness of the response as a measure of auditory brain-stem maturity if, therefore, unknown. Much research is warranted in this direction.