Thesis Title Auditory Brainstem Response: a Comparative Study of Ipsilateral and Contralateral Recordings in Normal and Unilateral Hearing Loss Subjects.

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ABSTRACT

In conventional auditory brainstem response (ABR) recordings, the ipsilateral technique was usually used to assess the integrity of the auditory system. Reviewing ABR literatures, several levels of decussation were found within the brainstem system. This concept was usually ignored in all ABR testings. Patients with severe unilateral sensorineural hearing loss, the impaired ear could not be tested by ABR due to the confounding effects of masking and the various degree of hearing loss. Contralateral ABR response

provided additional information to support if the lesions were restricted in the peripheral areas or deep in the central system. The purpose of this study was to investigate ipsilateral vs contralateral ABR wave III, IV and V and the percentage of wave IV-V separation in each recording. If comparable differences could be observed, then the integrity of both neural pathways may be examined separately. Fifty-three patients with severe unilateral sensorineural hearing loss, and 44 normal listeners were used as the subjects. Results indicated that contralateral latency of wave III decreased, wave IV remained constant, while wave V increased. Wave IV-V complex was separated significant higher in contralateral recording than in ipsilateral results. Findings were similar in both male and female normal subjects and the hearing impaired subjects. Results agreed with previous researchers. Findings from this study revealed significant delay in mean latency of wave III in patients with unilateral hearing loss compared to normal listeners in contralateral recording. Findings can be used to clearify the anatomical origin of ABR and physiology of neuroacoustic system.