

ABR evaluation under general anesthesia for young children with pervasive developmental disorders

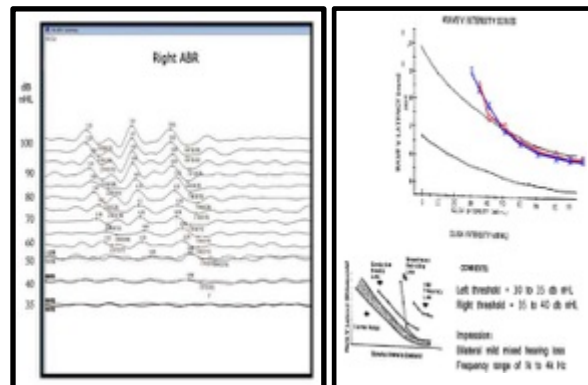
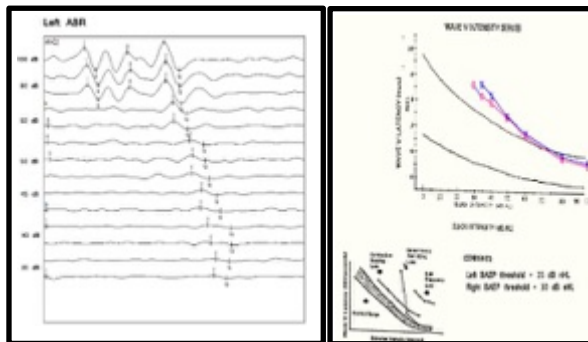
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Background: The need for an ABR in the first three years for some pervasive developmental disorders is due to language delays and/or non-responsiveness to sound that prompt parents and physicians to question the child's hearing acuity. In some cases, combative behavior is manifested, so a medical auditory examination is not possible due to the child's excessive movement and resistance. Behavioral auditory and other objective audiometric assessment is not possible due to the reasons given above.

Methods: 16 patients, 7 females and 9 males (6 months to 3 years old) underwent serial brainstem auditory evoked potentials with rarefaction click stimulation with intensities of 100 dB nHL, down (in 10 dB increments) to the patient's threshold for each ear. The electrode montage was Cz - (A1, A2). Non-contribution by the non-test ear was ensured by delivering appropriate levels of masking white noise to the contralateral ear. The patient was induced, intubated, in a supine position, and under general anesthesia. The physician performed a bilateral ear exam under a microscope prior to the ABR. Latency-intensity series Wave V data was mapped for each ear and adjusted to age normative absolute and interpeak latency values. All noise sources in the OR were eliminated including music and talking. Anesthesia machine sounds were attenuated. The average ambient room noise level was 45 to 50 dB SPL as measured by an Extech sound meter. ABR insert plugs provide 24-31 dB SPL attenuation. (Traynor, Wierzbowski

Latency-Intensity Series Examples:



Results:

Table: Results of 32 ears tested			
Degree of HL			
Severe to Profound	Moderate to Severe	Mild to Moderate	Normal
2 bilateral	1 bilateral 1 unilateral	6 bilateral 2 unilateral	
4 ears	3 ears	8 ears	17 ears
Rehabilitation 2 Cochlear Implants 2 Hearing Aids	3 Hearing Aids	1 Hearing Aid Counseling	Counseling and Referral
Type of HL:			
4 Sensorineural	2 Sensorineural 1 Mixed	3 Sensorineural 3 Mixed 2 conductive	17 Normal Hearing

Summary:

ABR combined with a medical examination under general anesthesia in the operating room is an effective method to diagnose and rule out hearing loss in young children with pervasive developmental disorders. It enables appropriate medical, audiological and other behavioral management to enhance communication in young children.