Editorial

Filtered Environmental Sounds

The auditory brainstem response (ABR) has certainly revolutionized pediatric evaluation. Thanks to ABR, we can now estimate the hearing sensitivity of babies, young children, and other difficult-to-test patients at virtually any age without their conscious participation. Senior clinicians, who remember galvanic skin response, respiration audiometry, cortical evoked response audiometry, and related attempts to put the measurement of hearing sensitivity in children on a more "objective" basis, will readily attest to the tremendous advance in capability provided by the ABR.

It is well to remember, however, that ABR has two important limitations. First, because of its expense, it is not universally available for pediatric evaluation, especially in third world countries, where the need is great. Second, it does not tell us everything we would like to know about the total process of "hearing," from sensory encoding to an appropriate motor response. Thus, behavioral responses to sounds will continue to play an important role in pediatric evaluation worldwide.

In this issue of *JAAA*, investigators Myers, Letowski, Abouchacra, Kalb, and Haas report the results of an ambitious effort to evaluate the efficacy of octave-band filtered environmental sounds as threshold-seeking stimuli in place of pure tones. Such lifelike stimuli as a baby crying, a clock chiming, a cuckoo clock sounding, and a frog croaking were employed. Myers et al were able to show, both in quiet and in noise, comparable detection thresholds for filtered sounds and pure tones over the audiometric frequency range. More importantly, however, they were able to define the relation between detection and recognition thresholds for the filtered signals.

To be sure, the idea of using meaningful sounds rather than meaningless sinusoids to capture and hold the child's attention is certainly not new. It can be traced back to the earliest pioneers of childhood assessment. But, until the advent of compact disk technology, it was awkward to use real sounds clinically. In order to achieve the necessary degree of frequency specificity, they had to be filtered, then recorded on tape. But tape-recorded stimuli lack the flexibility so necessary in pediatric evaluation, where time is always limited and rapid changes in protocol are often essential. But, as Myers et al point out, compact disk technology now makes it possible to store a wide variety of filtered sounds, yet access them randomly without the delay inherent in finding specific stimuli on magnetic tape. Such capability could represent a significant step forward in the behavioral evaluation of the hearing of children.

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