Editorial
On the Diagnosis of Auditory Processing Disorder (APD)
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If you spend much time around audiologists interested in auditory processing disorder (APD), sooner or later you will hear the statement that a test for APD must be “simple, quick, cheap, and easily scored.” Otherwise, it is solemnly averred, “clinicians will not use it.” This mantra has achieved virtually biblical status. The assumption seems to be that one can make the diagnosis of APD in a child given the availability of a few simple tests but that, if such instruments are not at the busy clinician’s fingertips, this troubling malady will remain forever undiscovered in countless children.

The consequence of such a mindset is that we have a number of “simple, quick, cheap, and easily scored” tests for APD that often identify symptoms of APD in significant percentages of otherwise normal, complaint-free children who have been recruited for control groups. It has in addition fostered, especially on the Internet, the worldwide circulation of an unbelievable amount of nonsense about APD—what it is and what it is not.

A possible basis for this unfortunate situation is that tests meeting these permissive inclusion criteria are very likely to be plagued by the influence of nonauditory factors. Current APD tests tend to be fashioned after one or more psychoacoustic models, that is, the tester presents an auditory task and scores how well the child performs the task along some measurement dimension (e.g., percent-correct repetition, gap-detection threshold, interaural difference, etc.). The performance measure is assumed to reflect nothing but auditory perceptual ability. It is then a simple matter to assess abnormality by comparing the child’s performance to the distribution of such performance in a normative group. But psychoacousticians learned many years ago that relatively uncontaminated behavioral measures of perceptual abilities are not easily obtained, even in cooperative young adults, by procedures that are “simple, quick, cheap, and easily scored.” A serious psychoacoustic investigator might, for example, test an adult participant for two to three days, using time-consuming and complex procedures involving expensive equipment, and then routinely discard, as unusable, all of the data gathered on the first day of testing. Some audiologists, on the other hand, want to test a child for only 15–30 minutes and expect to get the same quality of information.

It may be that this is exactly the wrong way to approach the problem of diagnosing an auditory perceptual deficit in a child. Over the past few decades dramatic advances in understanding how the brain works and in improving the diagnosis of brain disorders have come, not from providing tests that any clinician can administer in the office, but from the exploitation of technological advances in brain imaging and brain electrophysiology. Functional magnetic resonance imaging (fMRI), positron emission tomography (PET), computed tomography (CT), MR spectroscopy, magnetoencephalography (MEG), evoked electrical potentials (EP), and techniques of EEG and EP blind source analysis are just some examples of recent advances that have provided invaluable tools for the neuropsychologist, the neuroscientist, the neurologist, and the neurosurgeon. These new techniques, which are neither simple, nor quick, nor cheap, nor easily scored, have contributed immeasurably to our understanding of hemispheric specialization, localization of function, memory, emotion, and cognitive aging, to name just a few. Some examples of the maladies for which these procedures have enhanced evaluation include seizure disorders, traumatic brain injury, stroke, metabolic disorders of the brain, central vestibular disorders, intelligence, autism, and the diagnosis and localization of brain tumors.

In this issue of JAAA, authors Andrew Stuart and Kristal Mills, of East Carolina University, present a paper entitled, “Late Onset Unilateral Auditory Neuropathy/Dys-synchrony: A Case Study,” illustrating how the administration of a comprehensive battery of time-consuming and not-easily-scored measures can fine-tune auditory diagnosis. A 64-year-old woman presented with a history of progressive unilateral loss over a two-three year period. Based on testing that included magnetic resonance imaging, cochlear microphonics, otoacoustic emissions, middle-ear muscle reflexes, the auditory brain stem response, the middle latency evoked response, the long-latency evoked response, and a series of speech in noise measures, the investigators were able to narrow the diagnosis to auditory neuropathy/dysynchrony. Their systematic approach can serve as a model for clinicians seeking to differentiate APD from other auditory and nonauditory problems.

Perhaps it is time for audiologists to eschew APD tests that are “simple, quick, cheap, and easily scored” in favor of a systematic clinical research thrust to exploit contemporary technological advances in the search to identify and understand this troubling auditory disorder.

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