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Commentary

The Auditory Temporal Ordering and Resolution Tests' Effectiveness in Detecting Central Auditory Processing Disorder

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DESCRIPTION

Auditory temporal processing tests are key clinical measures in order to diagnose central auditory processing disorder (CAPD). Despite the fact that these tests have been used for decades, there is no current data to establish the usefulness of these tests in diagnosing problems in central auditory processing in adults, and the available national CAPD guidelines focus mostly on CAPD in children. The purpose of this study was to see how effective the auditory temporal ordering tests [duration pattern test (DPT) and frequency pattern test (FPT)] and a temporal resolution test [gaps-in-noise (GIN) test] are at detecting central auditory processing abnormalities in adults with documented brain pathology. Normal (or near-normal) hearing thresholds and a variety of hearing symptoms, such as difficulty understanding speech in noisy situations, distinguishing speech, and localizing sounds, are all signs of central auditory processing disorder (CAPD). Auditory inattention or memory problems can occur as a result of faulty auditory processing in the brain. CAPD patients require multisensory signals to help them listen, and they may also have cognitive or verbal impairments. These hearing impairments are not exclusive to CAPD; they can also be found in other illnesses such as autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), and others. Auditory discrimination, temporal processing, dichotic listening, low-redundancy speech recognition (monaural), and binaural interaction are among the tests that examine the many auditory processing domains. When evaluating for CAPD, baseline audiological assessments such as pure-tone audiometry, speech-in-quiet audiometry, otoacoustic emissions, and electrophysiological measures are also important to control for the presence of peripheral auditory impairment and complement behavioral auditory processing tests. The cochlear nucleus in the brainstem is the start of the central auditory nerve system, which continues up to the primary auditory cortex and association cortices. Ipsilaterally and contralaterally, peripheral sensory input is conveyed. At various levels of the auditory system, this signal is processed in serial and parallel, resulting in the complicated processing of auditory data. The CAPD battery exams are not exclusive to any one location. Temporal ordering and dichotic listening tests, for example, can both reveal problems in the brainstem as well as bilateral auditory cortex and interhemispheric function. A single CAPD test may not be sufficient to diagnose CAPD due to the complicated structure of CANS, which includes overlapping multilayer neural networks that serve diverse aspects of auditory processing. Although there are many other types of tests for CANS evaluation, this review focuses on research that look at the ability of auditory temporal processing tests, which are often used in clinical settings for CANS evaluation. Although there are many other types of tests for CANS evaluation, this review focuses on research that look at the ability of auditory temporal processing tests, which are often used in clinical settings for CANS evaluation. The DPT, FPT, and GIN are sensitive detectors of auditory processing abnormalities in persons with brain disease, according to our meta-analysis findings. Different forms of brain diseases and varied sites of lesion may have different effects on these test outcomes, as this study found that FPT is more sensitive to the function of the auditory cortex than other cerebral regions. Clinicians should be aware that these test results should be interpreted in the context of other patient characteristics (e.g., cognition) and that not all brain pathologies will result in auditory processing function deficits, depending on the location of the pathology and the natural history of the neurological disorder.

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