Traditionally, Attention Deficit/Hyperactivity Disorder (ADHD), or Attention Deficit Disorder (ADD), and Auditory Processing Disorder (APD) have been viewed as distinct entities. According to this view, some children have one, some children have the other, and some children may, indeed, have both, but they are two distinct entities. APD is thought to reflect an auditory-specific perceptual disorder that may become manifest in one or more of several hypothesized auditory processing abilities. ADHD/ADD is thought to involve the supramodal inability to marshal attentional resources satisfactorily.

But one finds, in the literature of these two disorders, curious intersections. A number of studies, for example, have shown that children with ADHD/ADD sometimes perform badly on tests of APD. Is this because attention flags over the sometimes lengthy duration of APD testing? Or, as some have suggested, is it because poor auditory processing skills cause attentional deficits? Another interesting commonality between the two disorders is their reaction to background noise. Children with either diagnosis typically perform better when background noise becomes less distracting. Finally, some dichotic listening studies have emphasized the role of attentional resources in producing the left-ear disadvantage so prevalent in APD children.

In this issue of JAAA, investigators from the University of Tennessee, Knoxville, add another interesting piece to the puzzle. In their article “Effect of Stimulant Medication on the Acceptance of Background Noise in Individuals with Attention Deficit/Hyperactivity Disorder,” researchers Melinda Freyaldenhoven, James Thelin, Patrick Plyler, Anna Nabelek, and Samuel Burchfield report that, in a group of young women diagnosed with ADHD/ADD, medication significantly increased the level of background noise they were willing to accept while listening to running speech. The authors studied acceptable noise level (ANL) by first having the participants adjust running speech to most comfortable level (MCL), then introducing multitalker babble and having the participants adjust the intensity of the babble to the highest level they were willing to accept and still follow the words of the story (called BNL). ANL is simply the difference between the speech presentation level and the BNL. Running speech was presented at three levels, 20 dB HL, MCL, and 76 dB HL. Participants were tested in both the medicated and unmedicated states. Results showed that the ANLs were larger (i.e., the participants accepted less noise) in the unmedicated state at all three presentation levels. In other words, stimulant medication produced systematic improvement in the acceptance of background noise.

Well, if you are an audiologist, you just have to find that very interesting. I don’t need to remind you that complaints about background noise permeate your day-to-day practice. Whether it is the child with suspected APD, the young adult with a high-frequency loss, or the elderly hearing aid user, there is seldom a working day that you are not made acutely aware of the problem of acceptable and unacceptable background noise. Is there a possible link between ADHD/ADD and APD? Are they both reflections of a common problem in the effective use of attentional resources? The answer may lie in a better understanding of the mechanism of stimulant medication. We second the authors’ conclusion that “the long term effects of stimulant medication on audition should be investigated.”

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