Auditory Processing Assessment in Children with Attention Deficit Hyperactivity Disorder: An Open Study Examining Methylphenidate Effects.

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Abstract

Introduction
Children with Attention Deficit Hyperactivity Disorder can present Auditory Processing (AP) Disorder.

Objective
The study examined the AP in ADHD children compared with non-ADHD children, and before and after 3 and 6 months of methylphenidate (MPH) treatment in ADHD children.

Methods
Drug-naive children diagnosed with ADHD combined subtype aging between 7 and 11 years, coming from public and private outpatient service or public and private school, and age-gender-matched non-ADHD children, participated in an open, non-randomized study from February 2013 to December 2013. They were submitted to a behavioral battery of AP tests comprising Speech with white Noise, Dichotic Digits (DD), and Pitch Pattern Sequence (PPS) and were compared with non-ADHD children. They were followed for 3 and 6 months of MPH treatment (0.5 mg/kg/day).

Results
ADHD children presented larger number of errors in DD (p < 0.01), and less correct responses in the PPS (p < 0.0001) and in the SN (p < 0.05) tests when compared with non-ADHD children. The treatment with MPH, especially along 6 months, significantly decreased the mean errors in the DD (p < 0.01) and increased the correct response in the PPS (p < 0.001) and SN (p < 0.01) tests when compared with the performance before MPH treatment.

Conclusions
ADHD children show inefficient AP in selected behavioral auditory battery suggesting impaired in auditory closure, binaural integration, and temporal ordering. Treatment with MPH gradually improved these deficiencies and completely reversed them by reaching a performance similar to non-ADHD children at 6 months of treatment.