Are suspected auditory processing disorders in children aged 8-12 years related to attention, working memory, nonverbal intelligence and communication abilities?

Ellen de Wit, Pim van Dijk, Bert Steenbergen, Cees P. van der Schans, Margreet R. Luinge

1.Hanze University of Applied Sciences Groningen, Research Group Healthy Ageing, Allied Health Care and Nursing, Groningen, The Netherlands
2.University of Groningen, University Medical Center Groningen, Department of Otorhinolaryngology, Head & Neck Surgery, Groningen, The Netherlands
3.Radboud University Nijmegen, Behavioural Science Institute, Nijmegen, The Netherlands
4.Australian Catholic University, Melbourne, Australia
5.University of Groningen, University Medical Center Groningen, Department of Rehabilitation Medicine, Groningen, The Netherlands

Results

Children with suspected APD have significantly poorer communication performance (parent report), poorer listening skills (teacher report), and poorer working memory and auditory and visual skills (Table 1 and Figure 1-3). No differences were found between groups in age, nonverbal IQ, and total scores of the auditory processing tests.

Methods

In a case-control study we examined 9 children who reported listening difficulties in spite of normal peripheral hearing (suspected APD group) and 21 typically developing (TD) children, ages 8.0 to 12.0 years. In this study we assessed:

- History, behavioral symptoms of ADHD, and communication skills (CCC-2-NL) with parental questionnaires.
- Listening skills with a teachers questionnaire (CHAPPS-NL).
- Auditory processing (Speech-in-Noise, Filtered Speech, Binaural Fusion, Dichotic Listening).
- Nonverbal Intelligence (Raven’s Coloured Progressive Matrices).
- Working Memory (CELF-4-NL).
- Auditory and Visual Attention (WAF test, Vienna Test System; Schuhfried).

Conclusion

There is a difference between children with suspected APD and TD children. Children with suspected APD perform insufficient on tests of working memory, and have a slower response to auditory and visual attention tasks. Parents of children with suspected APD report difficulties in communication and teachers assess the children of being at risk for listening difficulties. There is lack of evidence for the validity of a pure auditory deficit.