Differential Diagnosis of Auditory Processing Disorder
Authors

- Shalini Arehole, Ph.D., CCC-A
- Linda Badon, Ph.D., CCC-SLP

University of Louisiana at Lafayette
Introduction

- Children with Auditory Processing Disorder (APD), Attention Deficit Disorder (ADD) and Language Disorder (LD) tend to have overlapping symptoms.

- One of the arguments in the field of Communication Disorder has been that some higher-order cognitive deficit might lead to symptoms common for APD, ADD or LD.
Auditory Processing Disorder is defined as a problem understanding spoken language in the absence of hearing loss. Individuals with APD are said to have abnormally functioning central auditory pathway. Most individuals with APD have difficulty understanding speech in the presence of normal hearing.
Symptoms

- Bothered by loud sounds
- Easily flustered or confused
- Forgetful
- Easily frustrated
- Restless
- Easily distracted
- Shy
- Disobedient
- Clumsy
- Hyperactive
- Impulsive
- Problem following directions
- Irritable
- Problem with time concept
ADD, usually diagnosed in early childhood, is characterized by a persistent pattern of impulsiveness, a short attention span interfering with academic, occupational and social performance.
Children with ADD often have trouble concentrating in class.

Some display symptoms such as high energy, restlessness,

having trouble concentrating on and completing assignments, and disruptive behavior.

Other children are calm and seem distant. Some doodle or stare out the window while class is being taught, rather than pay attention.

Children with ADD often act out socially, as well.

http://EzineArticles.com/?expert=Michael_Russell
A language disorder is a problem with understanding and/or using spoken, written, and/or other symbol systems (gestures, sign language).

The disorder may involve

- The form of language — phonology, morphology or syntax
- The content of language — semantics
- The function of language — pragmatics
- Combination of the above

http://www.asha.org
Due to interactive nature of brain organization, difficulty in one area of communication could impact another area of communication.

Review of literature indicates that children with different disorders seem to present similar symptomatology.

This makes the differential diagnosis of the disorder difficult.
Therefore, we decided to conduct a post hoc study to determine the overlap of these three disorders in the clinical population in order to obtain an insight into the issue of differential diagnosis.
Method

- All the subjects were evaluated at University of Louisiana’s Speech-Language and Hearing Center.
- Clinical files of subjects evaluated in University of Louisiana’s Speech-Language and Hearing Center in the last 7 years were reviewed.
- Files of those subjects who had APD evaluation were assessed.
- Total of 18 files were reviewed.
- Files were reviewed to determine if there was coexistence of APD and ADD, APD and LD or APD+LD+ADD.
- This was achieved by determining if the subject who had APD also was diagnosed with ADD and subject with the diagnosis of APD also was diagnosed as having LD.
Methods

- APD was evaluated using SCAN-C test (pre-recorded material)
  - Filtered Words,
  - Auditory Figure Ground,
  - Competing Words and Competing Sentence.
  - In addition, Pitch Pattern Sequence Subtest was also given.
- Subject’s vigilance was tested using ACPT test.
- ADD diagnosis was done by child’s pediatrician.
Speech and Language Evaluation

- Speech and Language was evaluated by Speech-Language pathologists using following tests:
  - TOLD-1:3
  - TOLD-3
  - TOLD-P:3
  - PPVT-111
  - Gray Silent Reading test
  - PLS-4
  - CELF-3
  - Reading test inventory
  - Shipley and McAfee oral facial exam
  - Ull Stuttering profile
  - Clinical Discourse Analysis
  - Token test for Children
Results

Out of 18 subjects who came to the clinic for APD evaluation, 11 performed poorly on APD tests.

- APD: 61%
- Without APD: 39%

APD

Without APD

80%

20%
Of the 11 subjects who performed poorly on APD tests, 6 were diagnosed as having language disorder.
Of the 11 subjects who performed poorly on APD tests, 2 subjects were noted to have Attention deficit disorder.
APD with Language Disorders, ADD, or APD only

![Bar chart showing the distribution of APD, APD/ADD, and APD with Language Disorders. The chart indicates a higher prevalence of APD with Language Disorders compared to APD/ADD and APD alone.]
Out of 18 subjects who came to the clinic for APD evaluation, 11 subjects had language disorder (with or without APD).
Out of 18 subjects, 4 subjects had only Language Disorder.
Out of 18 subjects who came to clinic for APD tests, 6 subjects had been diagnosed with ADD.

Four subjects with ADD performed within normal limits on APD tests.
Conclusions

- Note that there is an overlap of symptoms for various disorders.
- Furthermore, it is possible that one disorder could lead to poor performance on other tests.
- For example, if a child had APD, poor listening ability might result in poor performance on Language tests or vice versa.
Conclusions

- It should be noted that 4 out of 11 subjects who performed poorly on APD tests did not have LD or ADD.

- It is possible for APD to exist by itself.
These findings reveal that children who need ADD/APD/LD evaluation must be evaluated by a multi disciplinary team.

APD might be associated with or lead to problems in higher order language learning or some attention difficulty.
Conclusions

- APD may co-exist with ADD and LD since test results may be affected by many factors including language, attention, memory and others.
- It is also possible that one of the disorder (APD, ADD, or LD) may result from dysfunction in higher order or global deficit since the skills may be inter-related and the behaviors similar.
- Processing of sensory data is interdependent and integrated and supported by cognitive domains and language representations.
- It is very important that differential diagnosis of APD, ADD or LD must rely on multidisciplinary assessment.
References


