Overview

- Although childhood apraxia of speech (CAS) affects only 1-2 children out of every 1,000, it occurs at a much higher rate when associated with certain diagnoses (Shriberg, Potter, & Strand, 2011; Webb, Singh, Kennedy, & Elias, 2003).
- Our retrospective analysis of the communication and motor profiles of 143 children with suspected CAS revealed a high percentage of children with seizure disorders (Iuzzini-Seigel, Delaney, & Kent, 2016).
- Previous work that reported CAS in children with epilepsy failed to use valid diagnostic criteria (Kugler et al., 2008) and consequently, a gap in our knowledge exists about the link between seizures and CAS.

Study Purpose & Hypotheses

This study aims to determine the speech and language profiles for children with seizure disorders.

1. CAS features will be more common among children with epilepsy compared to the 3.4% prevalence rate in the general population of children with speech sound disorders (Delaney & Kent, 2004).

2. Children with epilepsy with CAS will evidence higher rates of comorbid language impairments compared to children with epilepsy without CAS (i.e., non-CAS speech disorder).

Methods

- Participants were recruited through social media groups for individuals with epilepsy or speech sound disorders and at the Epilepsy Foundation Walk.
- All subjects were assessed on speech and language skills.
- Seven assessments, such as the CELF-5 and CELF-P, were modified to accommodate time limitations for virtual assessments.
- Subjects were assigned to groups based on speech and language scores (Iuzzini-Seigel et al., 2017) across standardized and custom assessments (i.e., GFTA-3, build upon words, multisyllabic words, nonwords, language sample, and “Buy Bobby a Puppy” repetition task). Groups included:
  - CAS only (CAS)
  - CAS + language impairment (CAS+LI)
  - Language impaired (L)
  - Typically developing (TD)
  - Non-CAS speech sound disorder (SSD)
  - SSD + language impairment (SSD+LI)
- Pilot data from 15 children with seizures are presented in comparison to control groups.
- Controls are age-matched and were assigned to groups based on scores from the same speech and language assessments.

Discussion and Future Directions

- Of the 15 pilot participants with seizure disorders, 6 children (40%) were diagnosed with CAS or CAS+LI; this is a substantially higher percentage of children with CAS compared to the general population of children with communication disorders.
- This data further provides support for a link between seizures and increased rate of CAS. Future research will examine seizure type and seizure loci to determine if these factors are associated with specific speech/language diagnoses.
- Only 2 of those children had previous apraxia diagnoses. CAS is still going undiagnosed in many cases and therefore it is important to understand connections between CAS and comorbid conditions.
- Although some participants reported incomplete information regarding seizure symptoms and loci, tonic clonic seizures were the most common with 26.7% reporting tonic clonic seizures amongst our 15 participants. Future research should continue to gather this data to determine if this prevalence is just as relevant to children with a range of cognitive-linguistic abilities.

Results

- Of the 20 children with CAS or CAS+LI, 10 children (50%) were diagnosed with CAS only (CAS), 5 children (25%) were diagnosed with CAS speech disorder (SSD), 2 children (10%) were diagnosed with CAS speech sound disorder (SSD+LI), and 3 children (15%) were diagnosed with CAS speech disorder and LI (SSD+LI).
- Children with epilepsy with CAS will evidence higher rates of comorbid language impairments compared to children with epilepsy without CAS (i.e., non-CAS speech disorder).

Acknowledgments: Funding support provided by Marquette University’s Regular Research Grant, Honors Research Fellowship, Summer Faculty Fellowship, and Summer Research Program, Aprexia Kids, and the CTSI of Southeastern Wisconsin. Thanks to Brittany Hasseldiek, Jane Laipen, Addy Thompson, Laura Summers, Claire Nestell, Katie Shoemaker, Bridget Kircher, and Vurai Shah for help with data collection and analysis. Thank you to the participants and their families who made this study possible.

References


Communication Findings in Children with Seizure Disorders

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Communication Findings Across Groups

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Notes: Group averages listed with standard deviations in parentheses *P. Participants were unable to conduct tasks; CAS Features (Iuzzini-Seigel et al., 2015) = 11 features rated & averaged across 5 speaking tasks: GFTA-3, Multisyllabic Words, Build-M-Up Words, Non-Words, Language Sample; SS = standard score; Articulation Assessment = Sounds-in-Words subset of the Goldman-Fristoe Test of Articulation 2 (Goldman & Fristoe, 2015); Core Language SS = Clinical Evaluation of Language Fundamentals-Preschool 2 (Wiig et al., 2004) for participants aged 3-4 years; the Clinical Evaluation of Language Fundamentals-Fifth Edition (Wiig et al., 2015) for participants older than 6 years of age; test is considered reliable and valid for children with a range of cognitive-linguistic abilities.