Listener Quality Judgments of Narrative Produced by Children with and without Epilepsy

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Purpose
To examine if listeners perceive differences in the narratives of children with and without focalized related epilepsy, and if these differences seem greater in children with a longer history of epilepsy.

Previous Findings
- Epilepsy is defined as recurrent unprovoked seizures that occur due to abnormal excessive electrical activity in the brain (Goldman & Goby, 2015).
- Children with epilepsy are at risk for the development of speech disabilities, but many cases are frequently overlooked (Svoboda, 2004).
- Children with epilepsy demonstrate significantly worse language abilities than both typically-developing children and children with non-cerebral system health problems, such as diabetes (see review in Drewel & Caplan, 2007).
- An earlier age of onset of focal epilepsy is associated with poorer language performance (Herrmann et al., 2001).

Why examine narratives?
- Narrative production is a complex task that requires the integration of linguistic, cognitive, and socio-cognitive skills not addressed in more formal language tests (Normby & Bishop, 2003).
- When compared to healthy peers, children with epilepsy use significantly more illogical wordings, complex sentences, and fewer cohesive devices in their narratives (Caplan et al., 2002).
- The narratives of children with epilepsy (CWE) do not differ from those produced by typically-developing peers in terms of narrative length, diversity of vocabulary used, syntactic complexity or discourse cohesion. However, CWE narratives contain a significantly shorter mean length of turn and fewer number of narrative elements (based on Trabasso and Rooden’s 1994 taxonomy, Strekas et al., 2007).

Why use a listening task?
- A listening task taps into listener perceptions of the child in everyday life.
- For example, Newman & McGregor (2006) asked listeners to evaluate the quality of narratives produced by children with specific language impairment using quality rating scales. The raters differentiated the ILI and their typically-developing peers with a 70% non-overlap in scores.
- Therefore, the manifestations of the disorder are noticeable even to laypersons and thereby may limit the successful functioning of the affected child (Newman & McGregor, 2006, p. 1032).

Method: Narrative Sample Database
- Participants were divided into 4 groups:
  - Children with chronic epilepsy (3 years following seizures; mean age = 116 months, range = 100-120 months)
  - Age and gender-matched typically-developing peers (mean age = 92 months, range = 75-105 months)
- Children with chronic epilepsy l2
d- Children with epilepsy had electroencephalogram or other clinical evidence that suggested a left hemispheric focus of seizure activity. All participants were right-handed.
- CMM researchers elicited stories using the wordless picture book.
- Participants were 15 years of age to 22 years old, 48 undergraduate students from the University of Maryland.

Method: Listening Task
- Participants listened to 45 different students, aged 13 to 22 years, 8 sessions.
- Exclusionary criteria included English as a second language and hearing loss, according to self-report.
- Participants listened to narratives individually or in groups of up to 3 people.
- Results:
  - No significant differences in ratings assigned to CWE versus ratings assigned to TD-R (Figure 1) for any of the response variables.

Results
- There were no significant differences in ratings assigned to CWE-R versus ratings assigned to TD-R (Figure 1) for any of the response variables.

Analysis
- Significant differences were observed across each of the 3 narratives, overall quality (z = -3.13, p = .0017), vocabulary (z = -3.28, p = .0010), story structure (z = 2.91, p = .0036), and grammar (z = 3.69, p = .0001). There were no significant differences between groups in ratings assigned to fluency (z = -2.39, p = .0169), coherency (z = 3.30, p = .0021), and prosody (z = 1.97, p = .0482). (Figure 2)

Discussion
- Listeners’ ratings of narratives were not greatly different when epilepsy was of recent onset.
- However, narrative ratings of children with chronic epilepsy were significantly lower than those of their typically-developing peers.
- Listeners produced stronger stories produced by children with chronic epilepsy as less well put together and less syntactically complex, but no different in terms of prosody, fluency or interest.
- This could be a result of chronic seizure activity, anti-epileptic drugs, or other factor.

Future Directions
- Research that examines:
  - The effects of anti-epileptic drugs on the development of language and cognitive skills in children with epilepsy.
  - Language performance and listener perceptions of language use in children with epilepsy, compared to children in whose epilepsy is focused in the right hemisphere.
  - The effects of epilepsy on children’s language development.

Select References

Acknowledgements
- This research was supported by the POLER project (Plasticity of Language and Epilepsy Research), PI William Gadilla, MD (NINDS RO1 NS44289).
- Special thanks to following individuals who also assisted in collection, transcription and analysis of narratives:
  - Alix Aune, Jessica Benstorff, Caroline Foster, Laura J. Doty, Jennifer Keena James, Lisa King, Erin Moore and Lisa Rosenberger.