Characterizing Cognitive and Neuropsychological Outcomes Following Pediatric Hemispherectomy

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Background

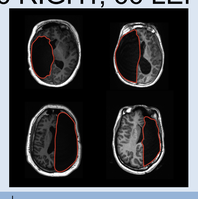
- Following pediatric hemispherectomies, seizures are generally controlled,[1] but effects on *cognitive function are* not always clear
- Plasticity of the developing brain may confer positive cognitive outcomes[2]

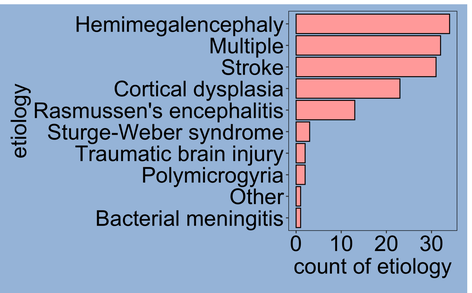
Study Objectives:

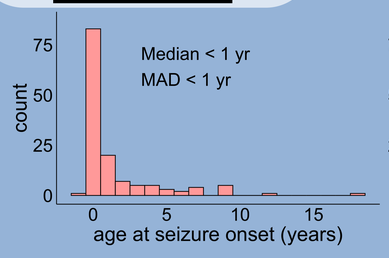
1) Determine whether post-hemispherectomy cognitive outcomes can be predicted from:
   - Age at seizure onset
   - Age at surgery
   - Side of resection (left vs. right)
   - Etiology
2) Characterize the discrete post-hemispherectomy neuropsychological comorbidities and their respective predictors

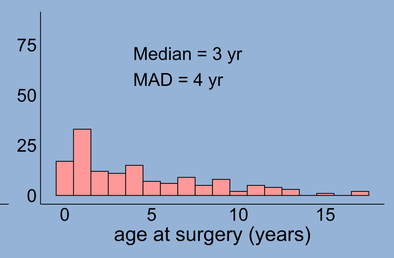
Global Pediatric Epilepsy Surgery Registry

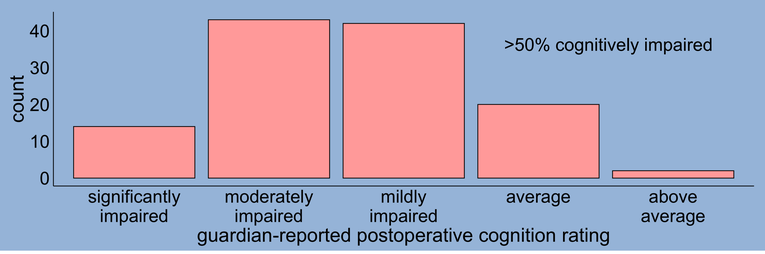
Guardian-reported data were obtained (n = 142)
76 RIGHT, 66 LEFT





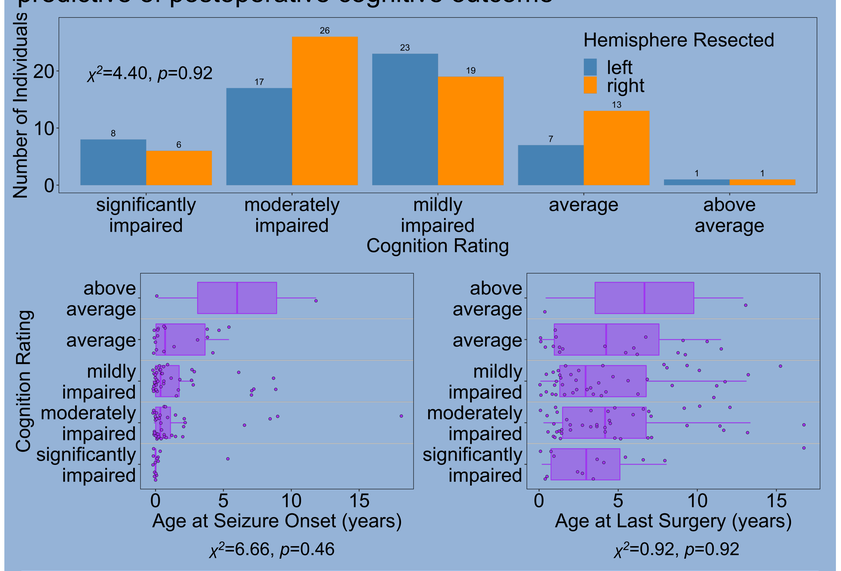




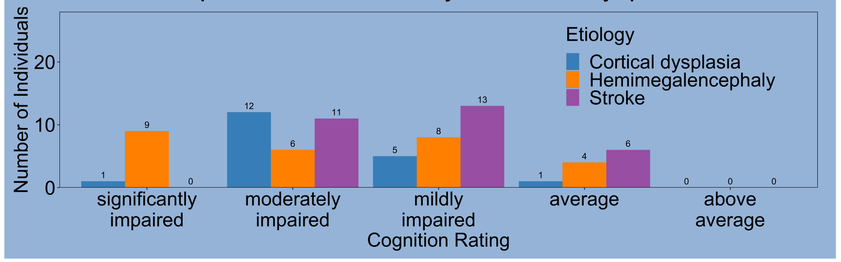


Predicting Cognitive Outcomes

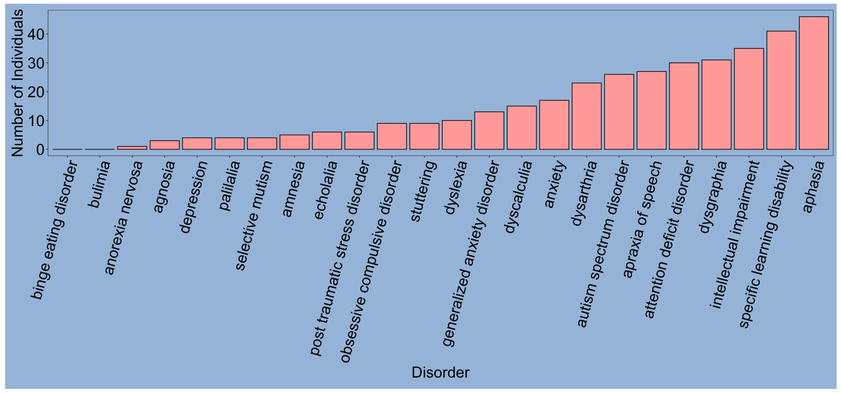
Side of resection, age at seizure onset, and age at surgery are <u>not</u> predictive of postoperative cognitive outcome



Patients with history of stroke appear to have better post-op outcomes than patients with a history of cortical dysplasia



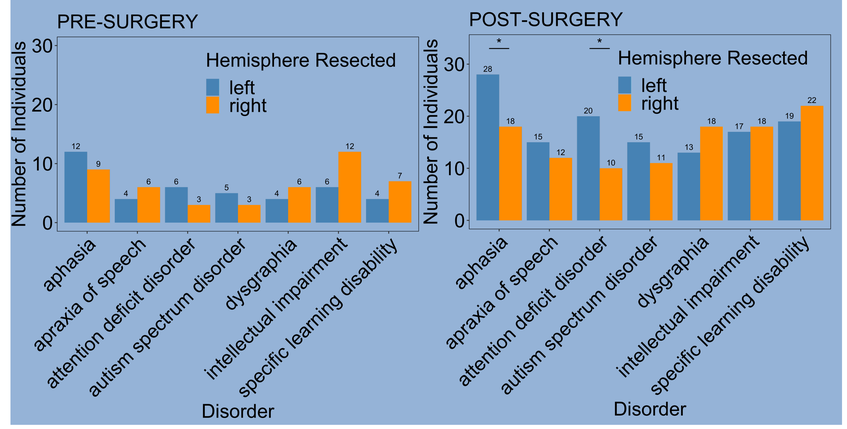
Characterizing Neuropsychological Outcomes



Predicting Neuropsychological Outcomes

Left hemispherectomy is associated with greater likelihood of aphasia and attention deficit disorder than right hemispherectomy

Note: aphasia and ADD did not differ between left and right resection groups pre-surgery



Conclusions

- Age at seizure onset, age at surgery, and side of resection <u>do not</u> predict cognitive outcome following hemispherectomy
- Patients with stroke show better cognitive outcomes than patients with cortical dysplasia
- Most common post-op neuropsychological outcomes include: aphasia, autism, ADD, apraxia of speech, dysgraphia, intellectual impairment, and specific learning disability
- Left hemispherectomy confers greater risk of aphasia and ADD than right hemispherectomy
  - Possibly due to competition for language in right hemisphere
- For more details, please stop by **Platform E (12/4 3:45-4:00pm)**

Acknowledgments and References

Acknowledgments

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References

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