Cognitive Changes Following Disconnective Surgery for Intractable Hemispheric/Sub-hemispheric Pediatric Epilepsy

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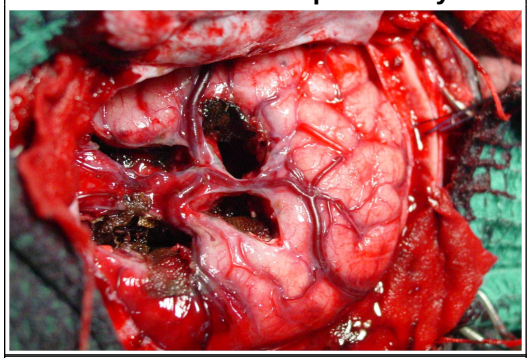
Introduction

Disconnective surgery provides excellent seizure outcome for the group of patients with sub hemispheric or hemispheric epilepsy when the indication criteria are strictly applied. However, data on cognitive outcome following surgery has not been properly documented for these patients in previous studies.

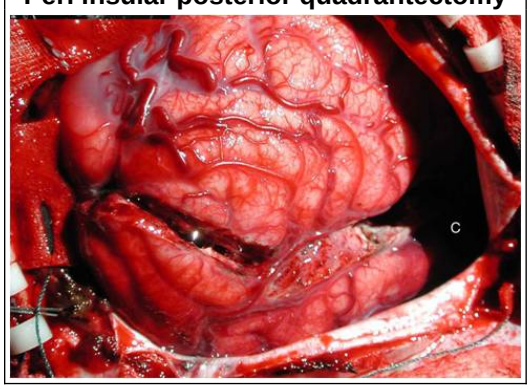
Methods

Sixteen patients underwent surgery between 2005 and 2009. They underwent detailed presurgical evaluation of their cognitive skills and were repeated annually for a minimum of 3 years.

Peri insular Hemispherotomy

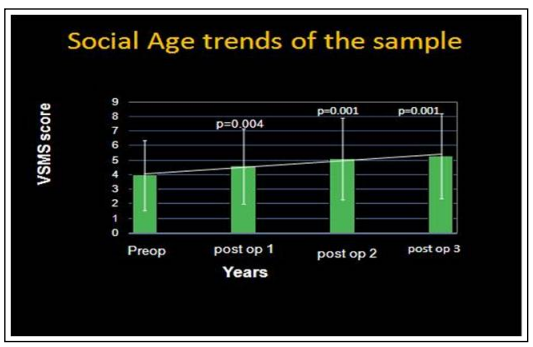


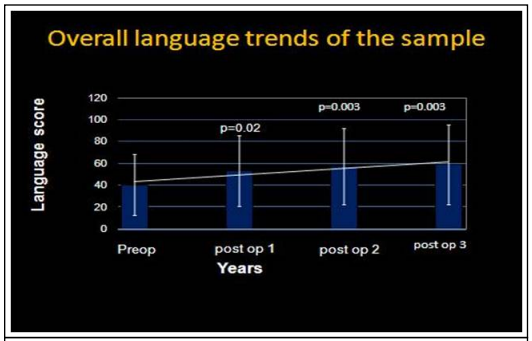
Peri insular posterior quadrantectomy

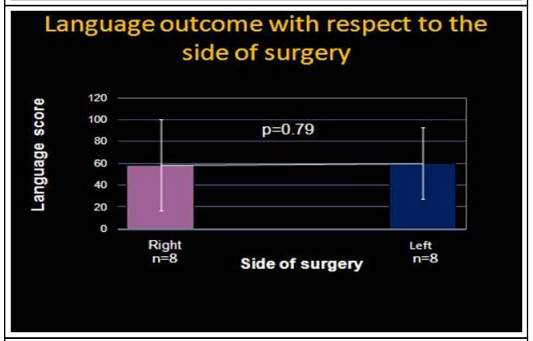


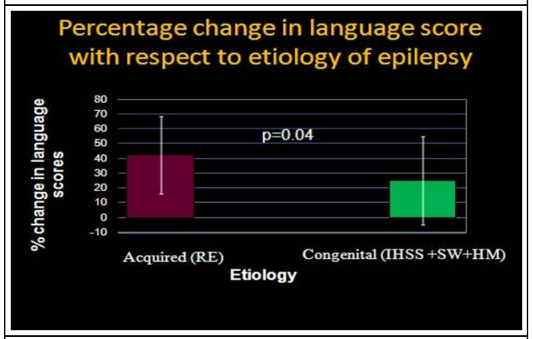
Results

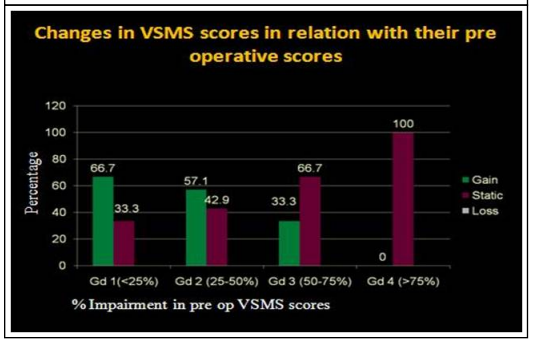
Their mean age was 6.6 years. The etiology of the seizure disorder was Rasmussen's encephalitis (n = 9), Infantile hemiplegia seizure syndrome (n = 2), hemimegalencephaly (n = 2), and Sturge Weber syndrome (n = 3). Fourteen (87.5%) patients underwent peri-insular hemispherotomy and two (12.5%) underwent peri-insular posterior quadrantectomy. The mental and social age, gross motor, fine motor, adaptive, and personal social skills showed a steady increase after surgery ($p < 0.05$). Language showed positive gains irrespective of the side and etiology of the lesion ($p = 0.003$). However, intelligence quotient (IQ) remained static on follow-up. Patients with acquired pathology gained more in their mental age, language, and conceptual thinking. Age of seizure onset and duration of seizures prior to surgery were predictive variables of postoperative cognitive skills.











Conclusions

This study showed that there were short- and long-term gains in the cognitive skills of children with intractable epilepsy after hemispherotomy and posterior quadrantectomy. This effect was greater in those patients with acquired diseases. Age of seizure onset and duration of seizures prior to surgery were independent variables that predicted the postoperative cognitive outcome.

References

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Learning Objectives

By the conclusion of this session, participants should be able to: 1) identify indications and effective treatment for hemipheric/sub hemispheric epilepsy and 2) dicuss the cognitive outcome following a major disconnective epilepsy surgery procedure in children.