Identifying predictors of resective epilepsy surgery in 414 patients admitted to the EMU



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Introduction

Although admission to an Epilepsy Monitoring Unit (EMU) is essential for the pre-surgical work-up of patients with medically refractory epilepsy, prolonged referral times and resource limitations are significant barriers to access to these highly specialized units. It is therefore important to identify patients who would benefit most from EMU admissions, namely those who will go on to have resective epilepsy surgery.

Methods

We performed a retrospective analysis of patients admitted for pre-surgical evaluation to the EMU of Toronto Western Hospital from 2004 to 2011. As a hypothesis-generating exercise, multivariate logistic regression was used to identify variables that could independently predict patients that went on to have epilepsy surgery.



Figure 1. Flowchart of patients assessed in the EMU at TWH between the years 2004-2011.





Figure 2. A) Analysis of the overall reasons for patients not undergoing surgical resection for medically-intractable epilepsy. Patient choice includes patients who refused surgery for iEEG implantation B) Analysis of factors affecting decision by the epilepsy team to not offer surgical resection to medically-intractable epilepsy patients.

Learning Objectives

Through this presentation, our goal is to identify factors that would be predictive of patients with medically-refractory epilepsy being selected as surgical candidates following an admission to the EMU.

Results

From a total of 414 patients admitted to the EMU, 62.5% were offered surgery (of whom, 48.7% consented to the procedure). Male patients and those with a lesional MRI were both 1.9 times more likely to undergo surgery (95% confidence interval 1.18-2.98 and 0.94-3.80, respectively). Patients with non-localizable seizures were 0.14 times more likely (7 times less likely) to undergo surgery (95% CI 0.02-1.25).

Conclusions

In this study, male gender, the presence of a lesion on MRI and localizable seizures independently predicted subsequent resective epilepsy surgery in patients admitted to the EMU. These findings must be confirmed in future datasets at other centres. If robust predictors of surgical candidacy are verified, this information can be incorporated into the considerations involved in the decision to admit patients to EMUs.