

## Learning Objectives

By the end of this session, participants should be able to:

1) Describe the importance of understanding the role of anti-epileptic drug (AED) administration for seizure prophylaxis in brain tumor patients

2) Discuss, in small groups, the therapeutic index of these medications in patients who are seizure free at the time of surgery versus patients with a prior history of seizures

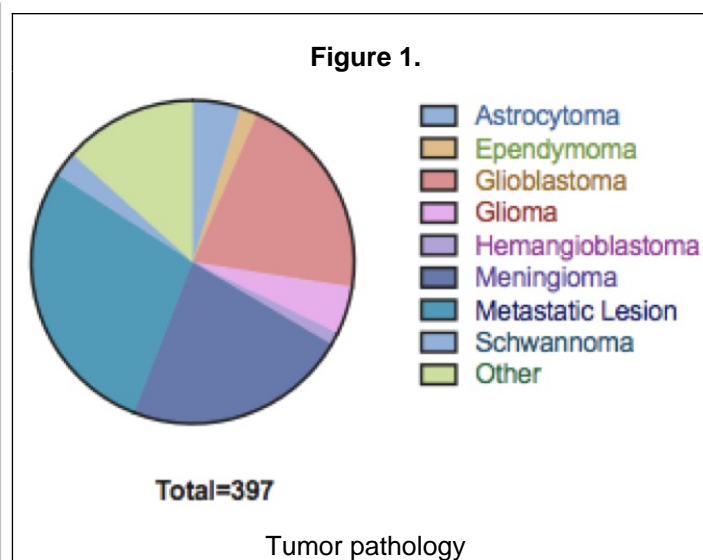
3) Identify an effective protocol for determining if seizure naïve craniotomy patients significantly benefit from administration of AEDs.

## Introduction

The use of prophylactic anti-epileptic drugs (AEDs) in patients undergoing craniotomy for tumor resection is controversial. Published studies suggest that prophylactic administration of AEDs is unnecessary, especially in patients who are seizure free at the time of craniotomy. Based upon this literature, we hypothesized that cessation of prophylactic AEDs in patients undergoing craniotomy does not result in a significant increase in seizures. Our neurosurgical team implemented a protocol for withholding AEDs in seizure naive patients at the time of craniotomy for tumor resection.

## Methods

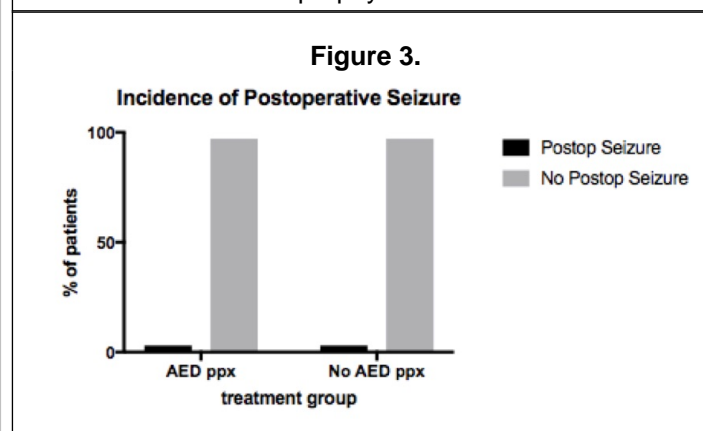
A chart review was performed in which we identified all patients undergoing craniotomy for tumor resection. From this cohort, we identified those from whom AEDs were prospectively withheld as well as those who were seizure free at the time of surgery. Patient data such as age, gender, tissue diagnosis, and seizure history were collected over a period from January 2013 through June 2017. The seizure incidence rates between individuals who did not receive prophylaxis were compared to matched controls who received AED therapy.



**Figure 2.**

	Postop Seizure	
	Yes	No
AED ppx	6	174
No ppx	7	210
<b>Total</b>	<b>13</b>	<b>384</b>

Postoperative seizure outcomes with or without AED prophylaxis



## Results

A total of 743 eligible patients were identified. After an initial chart review, 629 (317 female) underwent craniotomy for tumor resection. Of this cohort, a total of 397 (63%) patients had no prior history of seizure(s) at the time of tumor resection; of these patients, 217 (55%) did not receive prophylactic AEDs. Among the seizure naive patients who did not receive AED prophylaxis, 7 (3.2%) experienced a postoperative seizure in comparison to 6 (3.3%) of the 180 patients who were given prophylactic AEDs ( $p=0.58$ ; Fisher exact test).

## Conclusions

From this dataset we observed no statistically significant difference in the incidence of new postoperative seizure(s) following implementation of our protocol when compared to controls who received AED therapy. This preliminary observation is intriguing and warrants further study in order to more accurately define the therapeutic index of prophylactic AED therapy in patients undergoing craniotomy for tumor resection.

## References

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