

Seizure Outcomes in Occipital Lobe Epilepsy Surgery: A Systematic Review and Meta-analysis Stephen C Harward BA; William Chen BA; John David Rolston MD PhD; Dario J. Englot MD PhD Duke University (SH), University of California, San Francisco (WC & JR), and Vanderbilt University (DE)



Introduction

Occipital lobe epilepsy (OLE) is a relatively rare focal epilepsy syndrome. While seizures are refractory to medical management in many OLE patients, surgical resection has proven a viable treatment option for these individuals. Previous studies have examined seizure freedom rates following surgical resection for OLE; however, these case series are limited by small sample sizes and patient heterogeneity and thus exhibit significant variability in their results. Thus, post-operative seizure outcomes and their predictors for OLE patients remain poorly understood.

Methods

We performed a PubMed search for manuscripts published1990-2015 (Fig. 1). Seizure freedom rates following OLE surgery were examined and potential predictors were evaluated with meta-analyses. Postoperative visual deficits were also examined.



Results

We identified 27 case series comprised of 584 patients with greater than 1 year of follow-up (Table 1). Post-operative seizure freedom (Engel Class I outcome) was observed in 65% of patients, and this outcome was significantly predicted by age less than 18 years (OR 1.54, 95% CI 1.13-2.18) (Fig. 2A), focal lesion on pathologic analysis (OR 2.08, 95% CI 1.58-2.89) (Fig. 2B), and abnormal preoperative MRI (OR 3.24, 95% 2.03-6.55) (Fig. 2C). Of these patients, 175 also had reported visual outcomes, and 57% of these individuals demonstrated some degree of hemispheric visual decline following surgery. We did not find any relationship between post-operative visual outcomes and other factors including post-operative seizure freedom.

First author	Year	No. patients included
Appel	2015	19
Aykut	1998	35
Barba	2005	9
Battaglia	2012	7
Bautista	1999	7
Bidzinski	1992	11
Binder	2008	52
Blume	1991	16
Caicoya	2007	7
Daniel	2007	13
Davis	2012	43
Hong	2002	7
Ibrahim	2012	40
Jehi	2009	25
Jobst	2010	12
Kivelev	2012	9
Kuzniecky	1997	6
Lee	2005	26
Liava	2014	51
Salanova	1992	36
Sarkis	2012	36
Sinclair	2005	6
Tandon	2009	21
Williamson	1992	20
Yang	2015	35
Yun	2006	22
Zentner	1996	13
Total		584

Figure 2: Meta-analyses examining factors associated with seizure freedom after occipital lobe epilepsy



Conclusions

For many OLE patients with medically refractory seizures, surgical resection is a viable and effective option with nearly two-thirds of patients achieving seizure freedom. Patients must be counselled regarding the risk of visual decline following surgery. Further study is warranted to elucidate factors associated with post-operative visual outcomes.

Learning Objectives

After reviewing this presentation, participants should be to:

1) Understand the efficacy of surgical resection for occipital lobe epilepsy,

2) Identify patient factors predictive for seizure freedom following surgery, and

3) Recognize the need for further study to identify factors prognostic for visual outcomes following occipital lobe epilepsy surgery.