

Introduction

Vagal nerve stimulation (VNS) and corpus callosotomy (CC) have both been shown to be of benefit in the treatment of medically refractory epilepsy. Recent case series have reviewed the efficacy of VNS in patients who are status -post CC with encouraging results. There remain little data, however, on the use of CC following VNS therapy.

Methods

The records of all patients at our center undergoing CC following VNS between 1993 to 2013 were reviewed. Patient baseline characteristics, operative detail and post-operative outcomes were analyzed.

Results

Nine patients met inclusion criteria. Median follow-up was 50 months (range of 10-113). Mean time between VNS and corpus callosotomy was 55.8 months. The most common reason for corpus callosotomy was progression of seizures after VNS. Nine patients had anterior corpus callosotomy and one patient returned to the OR for a completion corpus callosotomy. All patients had decrease in rate of falls and drop seizures. Four patients experienced elimination of drop seizures. One patient had a Class II outcome, and seven patients had Class III outcomes and one patient had a class IV outcome. There were three major immediate post-operative complications. One patient developed pneumonia, one patient developed mutism which resolved, and one patient suffered a stroke resulting in mild hemiplegia and hand apraxia.

Conclusions

CC can help reduce seizures in patients with medically refractory epilepsy following VNS, particularly with respect to drop attacks.

Outcomes for Corpus Callosotomy following Vagal Nerve Stimulation in Patients with Medically Intractable Epilepsy

	Age/ Sex	Seizure type(s)	MRI findings	Extent of corpus callosotomy	Interval between VNS and CC (mo)	Follow-up (mo)	Complications	Engel class
1	36 F	Generalized tonic-clonic	Normal	Anterior 2/3	29	12	None	3
2	39 M	Drop attacks	Normal	Anterior 2/3	43	20	Pneumonia	3
3	31 M	Generalized tonic-clonic, Drop attacks	Bilateral periventricular heterotopia	Anterior 2/3	99	8	None	3
4	21 F	Generalized tonic-clonic, Drop attacks, Absence	Bilateral deep white matter disease	Anterior 2/3	39	82	None	4
5	35 M	Drop attacks	Fronto-temporal ecephomalacia	Complete	25	91	None	2
6	28 M	Complex partial	Left cortical dysplasia	Anterior 2/3	65	61	Mutism	3
7	38 M	Complex partial	Occlusion of left sigmoid and jugular viens	Anterior 2/3	71	55	Stroke, left hemiparesis	3
8	56 F	Drop attacks	Bilateral gray matter heterotopia	Anterior 2/3	60	44	None	3
9	37 F	Generalized tonic-clonic, complex partial	Normal	Anterior 3/4	72	99	None	3
Mean	36				53.5	47.2		

CC = Corpus Callosotomy, VNS = Vagal Nerve Stimulation

Learning Objectives

By the conclusion of this session participants should be able to

- 1) Describe the indications for corpus callosotomy and vagal nerve stimulation in epilepsy
- 2) Discuss the efficacy of palliative surgery in medically intractable epilepsy
- 3) Describe complications of corpus callosotomy