



Background

An association between multiple sclerosis (MS) and seizures has been previously established. Epilepsy occurs 2-3 times more frequently in patients with MS than in the general population. The prevalence of epilepsy in the general population is 0.5%-1%, while in the MS patients ranges from 0.5% -10.8%.

Co-existence of these two relatively common diseases may occur (chance association). However, the higher risk of epilepsy in MS has been confirmed. Factors that are associated with this high risk include the epileptogenicity of demyelinating plaques, alteration of sodium channel expression and medication effect. Baclofen, 4- aminopyridine and possibly interferons may trigger epilepsy.

Objective

To evaluate the type of seizure, time of first seizure in relation to the MS diagnosis, relation between the occurrence of epilepsy and relapses, response to treatment and correlation to imaging findings.

Methods:

- Retrospective chart review of 855 patients who visited the Maxine Mesinger MS Clinic from July 2008 to December 2008.

- Twenty one patients with MS and seizures were identified.

- Patients who developed epilepsy after a traumatic brain injury or after a brain tumor diagnosis were excluded from the study.

- Data regarding patients' demographics, onset and type of epilepsy, past medical history, medications, imaging findings and cognitive function of the study patients were collected.

Results

- Patients' demographics are shown in table 1.
- Types of seizures are shown in Fig 1.
- Prevalence of epilepsy in our study was 2.6%
- 14.3% of patients had epilepsy before their MS diagnosis.
- 19% of patients had a new onset seizure as the first manifestation of their MS.
- 9.5% developed status epilepticus during a relapse of their MS. Magnetic resonance imaging (MRI) scan identified new demyelinating plaques.
- 9.5% of patients had childhood epilepsy twenty years before their MS diagnosis. Recurrence of epilepsy occurred shortly after their MS diagnosis.
- 86% of our patients were on a first line anticonvulsant with good control of their symptoms.
- 42% were on two drugs, including a first and a second line anticonvulsant.
- 37% had mild cognitive impairment.
- None of our patients had seizures caused by a medication, such as baclofen or interferons.

Mean age in years (range)	47.2 (32-68)	
Gender	Men	39%
	Women	61%
Race	Caucasian	80%
	African-American	10%
	Hispanic	10%
MS type	RRMS	56%
	SPMS	26%
	PPMS	18%

Table 1. Patients' demographics

Frequency of different types of seizures in MS patients

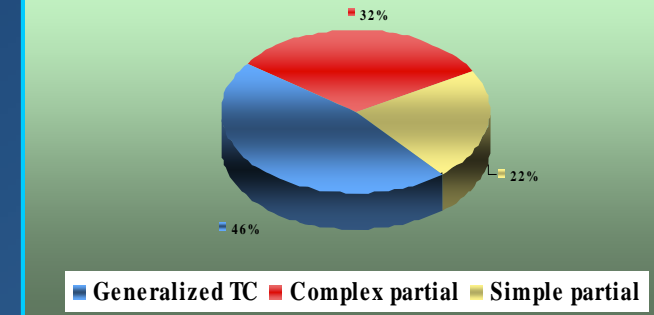


Figure 1. Types of seizures in MS patients

Conclusions

- Prevalence of seizures in MS patients is similar to the one reported in previous MS studies.
- Epilepsy in most patients is a benign or even self-limiting disorder.
- Development of status epilepticus requiring immediate attention is still a possibility.
- MS may cause re-emergence of seizures in previously epileptic patients.
- Cognitive impairment occurs in a significant number of patients and it may be due to seizures, MS, medication effect, or a combination of all above factors.

References

- Koch M, Uyttenboogaart M, et al. Seizures in multiple sclerosis. *Epilepsia*, 2008; 49(6):948-953
- Poser CM and Brinar VV. Epilepsy and multiple sclerosis. *Epilepsy & Behavior* 2003; (4): 6-12