RESEARCH BRIEF

Benign Partial Seizures of Adolescence

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Received: August 2, 2010;
Initial review: August 26, 2010;
Accepted: September 21, 2010.

Benign partial seizures of adolescence (BPSA) presents as partial seizures with or without secondary generalization occurring isolated or in a cluster in the first 24 to 48 hours after onset in adolescents. Correct recognition of this entity can avoid use of antiepileptic drugs and associated risks. We conducted retrospective review of charts to identify seven cases of BPSA between 11-15 years at presentation who did not have generalized epilepsy, benign rolandic epilepsy, benign occipital epilepsy, an epileptogenic lesion on neuroimaging, or unprovoked recurrent tonic-clonic seizures. All of them had partial seizures, normal neuroimaging and electroencephalogram with no recurrence of seizures despite no treatment.

Key words: *Benign partial seizures of adolescence, epilepsy, neuroimaging.*

Published online 2011 Feb 28. PII: S097475591000153-2

Benign partial seizures of adolescence (BPSA), also known as benign (isolated) focal seizures of adolescence constitute an idiopathic, short-lived and transient period of seizure susceptibility during the second decade of life, and has an excellent prognosis. This entity does not need any treatment [1]. The psychosocial consequences of chronic epilepsy in adolescence are considerable, thus early recognition of this benign syndrome is important so that prolonged treatment with antiepileptic drugs (AEDs) can be avoided.

Though described in 1978 [2,3] with more than 200 cases described so far, there is lack of awareness of this entity among pediatricians [1,4], due to which patients are put on long term anticonvulsants. We present our experience with this condition over a period of three years.

METHODS

A retrospective chart review of patients of epilepsy/ seizures attending the pediatric neurology clinic with the diagnosis of BPSA was done. The clinic is run by a single qualified pediatric neurologist, and all patients and their investigations were evaluated by him. Diagnosis of BPSA comprised of adolescent patients with partial seizures that occurred in isolation or in a cluster, with or without secondary generalization during the first 24-48 hours after onset, with normal neurologic and mental examination and normal brain imaging.

The age cut off of the first unprovoked seizure was from 11- 18 years. None of the patients received long term treatment with antiepileptic drugs. Patients with known mental or neurologic deficits or neuroradiologically documented lesions were excluded. Patients with a diagnosis of generalized epilepsy, benign childhood epilepsy with centro-temporal spikes or childhood epilepsy with occipital paroxysm (CEOP) were excluded [5,6].

The patient and seizere characteristics, neuroimaging and EEGs (sleep and awake) that were recorded after 7 days of seizure, were also analyzed. The patients had been followed up in the clinic every 3 months in the first year and then biannually as per

WHAT THIS STUDY ADDS?

- Benign partial seizures of adolescence should be considered in an adolescent presenting with a single or cluster of partial seizures with or without generalization and having normal EEG and neuroimaging.

our clinic protocol. Those who missed follow ups were interviewed telephonically. Those who had recurrence of seizures and were started on AEDs were excluded from the study. Only patients who had a minimum follow up of 12 months were included in the study.

RESULTS

The total number of epilepsy cases seen in the clinic over a period of 3 years was 678 and seven patients (5 boys and 2 girls) of these met the inclusion criteria for BPSA **(*Table* I)**. None of the patients had a personal or family history of epilepsy or febrile seizures. All of them were intellectually normal and were going to school. Most of the seizures lasted for less than ten minutes and none of them had any post-ictal deficit. While five of them had seizures when they were awake, two had them in the night. All of the patients had a normal interictal EEG and neuroimaging findings (6 had 1.5 T magnetic resonance imaging and 1 computed tomography). Four of our patients who were referred to us were given loading dose of AEDs and were on maintenance therapy. The remaining three who presented to our hospital were not given any AED but were observed for 48 hours before discharge. All patients including those who were on AEDs were sent home without AEDs and were followed up.

Ten patients were suspected to have BPSA at presentation, but because of recurrence of seizures during follow up were excluded from the study. All of these had a normal neuroimaging and EEG at presentation. Five of these were diagnosed as frontal lobe seizures, three as BCETS and two patients as CEOP subsequently based on the semiology and repeat EEG findings.

DISCUSSION

Benign partial seizures of adolescence is a transitory condition occurring predominantly in male subjects, starting in the second decade of life, with a peak of onset between ages 13 and 14 years. It is characterized by simple partial motor and somatosensory seizures with secondary generalization, occurring isolated or in a cluster in the first 24 to 48 hours after onset. The seizures happen predominantly when the patient is awake and have benign course. The interictal EEG (both sleep and awake), neurologic examination, and neuroradiologic images are normal, and a family history of epilepsy is rare [4]. The prognosis is excellent; in 80% of patients, there is a single, isolated seizure event and, in the remaining 20%, a cluster of 2-5 seizures all occurring within 36-48 hours. For the same reason, no drug treatment is needed and only counseling of the adolescent and parents will suffice.

TABLE I CINICAL FEATURES AND FOLLOW-UP OF PATIENTS WITH BENIGN PARTIAL Seizures of Adolescence

Patient no.	Age at onset/gender	Type of seizures	No of seizures	Follow up (months)	Treatment received
1	11 y/M	Complex partial	1	12	None
2	14 y/F	Simple partial with secondary generalization	1	15	None
3	11 y/M	Simple partial	2	36	Valporate
4	11 yr/M	Complex partial	2	18	Valporate
5	12 y/M	Simple partial with secondary generalization	1	15	Phenytoin
6	14 y/F	Simple partial with secondary generalization	1	12	None
7	15 y/M	Simple partial with secondary generalization	1	24	Phenytoin

The results of our series are in consonance with previous reports [4,7,8]. The most important differential diagnosis of BPSA is cryptogenic focal epilepsy, in which normal neurologic examination and normal neuroradiologic imaging are often found. Electroclinical features and evolution in patients with focal cryptogenic epilepsy are different from those found in BPSA. Late-onset benign focal epilepsies of childhood may be considered as a differential diagnosis but the EEG findings and seizure recurrence differentiate these from BPSA [4,5].

In resource poor settings where facilities for neuroimaging and EEG are not readily available, patients can be started on AEDs till the results of these tests are available. If the results are normal, then the AEDs can be carefully withdrawn and patients kept on regular follow-up to look for recurrence of seizures. If seizures recur, then a diagnosis of epilepsy should be considered and patients put on long term AEDs.

Contributors: MK conceived and designed the study and was involved in management of patients. He will act as guarantor of the study. VC and PP collected the data and drafted the paper. The final manuscript was approved by all authors.
Funding: None. *Competing interests*: None stated.

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