Case Report

Familial Episodic Ataxia Type II

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Abstract

The familial episodic ataxia type II is a rare, dominantly inherited disease characterized by episodes of ataxia of early onset, often with completely normal cerebellar function between attacks. We report a family with affected members who had features of episodic ataxia type II and cerebellar atrophy on MRI imaging. All the affected members were successfully treated with acetazolamide, a carbonic anhydrase inhibitor. They are asymptomatic at 2 year follow-up.

Introduction

Episodic ataxia is inherited as autosomal dominant trait characterized by episodes of ataxia, vertigo and dysarthria usually lasting a few hours. Two distinct forms have been identified. Episodic ataxia type I and Episodic ataxia type II. The remarkable responsiveness of episodic ataxia type II to acetazolamide has been reported. We report a family with some of the affected members who had features of ataxia, vertigo and vomiting lasting for 2 to 6 hours since the age of 10 to 15 years precipitated by exertion and stress often with completely normal between attacks. MRI brain revealed cerebellar atrophy in all the affected members. They were treated with acetazolamide and showed remarkable improvement.

Case Report

The proband presented to us at the age of 42 years with history of ataxia, vertigo and vomiting since the age of 14 years. He had experienced several attacks of vertigo and ataxia lasting for 3 to 6 hours. The episodes were precipitated by exertion. No history of headache or seizures. On examination, patient has mild truncal ataxia, scanning speech, bilateral dysmetria and falling tendency to either side on tandem gait. Patient had normal mental function, no pyramidal or extrapyramidal involvement. He was successfully treated with acetazolamide.

The family history of the proband revealed 13 members including 65 year old mother (II-1) and 62 year old uncle (II-2) who had suffered from gait disturbances since the age of 40’s and 44 year old brother (III-1), 33 year old sister (III-4) and 13 year old brother’s son (IV-1) had been affected with features of cerebellar ataxia lasting for 2 to 6 hours since the age of 10 to 15 years precipitated by exertion and stress. Diagnosis of familial episodic ataxia type - II was made in view of clinical features and strong family history. The pedigree chart shows the family members affected with episodic ataxia type – II (Fig. 1). MRI brain (T2 axial and T2 sagittal) showed cerebellar atrophy in all of them (Figs. 2 and 3). They were treated with acetazolamide and showed remarkable improvement at 2 years follow up.

Discussion

The familial episodic ataxia type II is a rare, dominantly inherited disease characterized by episodes of ataxia of early onset, often with completely normal cerebellar function between attacks. Two types have been identified. The features of episodic ataxia I are cerebellar symptoms lasting for seconds to minutes with bilateral myokymia with onset of attacks since early childhood produced by startle and exercise and spontaneous resolution in second to third decade. Mutation underlying episodic ataxia I is on chromosome 12 and KCAN 1 is the responsible gene.

Familial episodic ataxia type II is caused by point mutations of

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Received: 15.11.2010; Revised: 19.01.2011
the alpha 1A calcium channel gene, CACNL1A4, on chromosome 19P1. Other point mutations of the same gene causes familial hemiplegic migraine in which cerebellar ataxia may develop, while CAG repeat expansion within CACNL1A4, SCA6 mutation causes ADCA type III. Episodic ataxia type II is characterized by features of cerebellar ataxia lasting for hours to days provoked by exertion and stress with the age of onset in second decade. Gaze evoked nystagmus with features of rebound nystagmus is observed in between attacks.2 MRI brain shows cerebellar atrophy.

Acetazolamide reduces the severity of attacks.3,4 Patients with episodic ataxia type II have a greater response than those with type I in an average dose of 500 to 750 mg/day. Life style modification can be effective as stress and exercise exacerbate attacks.

In our study, all the family members had both clinical features and MRI features of episodic ataxia type II and dramatically improved with acetazolamide. They are symptom free at 2 year follow up. Genetic study was not done in our patients.

In conclusion, this case report serves to emphasize the need for a high index of suspicion to diagnose this rare treatable channelopathy.

Acknowledgement

We wish to thank Dr. N. Mohan, Medical Superintendent, Govt. Mohan Kumaramangalam Medical College Hospital, Salem, for his encouragement towards publication of this article.

We thank Dr. P. Senthilkumar, Asst. Prof., Dept. of Radiology, Govt. Mohan Kumaramangalam Medical College Hospital, Salem, for his valuable academic help.

References

1. Ophoff RA, Terwindt GM, Vergonwe MN, Eval. Familial hemiplegic migraine and episodic ataxia 2 are caused by mutation in the ca2+ channel gene CACNL1A4, cell, 1996;87:543-552.