ORIGINAL RESEARCH

CARBAMAZEPINE IN THE TREATMENT OF CHOREA

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ABSTRACT

Objective: To investigate the efficacy of carbamazepine in children with chorea.

Patients and Method: Six children (three boys, three girls, mean age 11.5 years) with the diagnosis of chorea were treated with carbamazepine (5-20 mg/kg/day). Response to the treatment was assessed based on improvement of hand-writing and Archimedes spiral test.

Results: Clinical improvement was observed in all children within the first two weeks. Chorea totally disappeared in four patients. In the other two patients chorea did not disappear totally, however markedly improvement was observed. No side effects were seen.

Conclusion: Carbamazepine is an efficient and safe drug in the treatment of chorea in children.

Keywords: Chorea, Carbamazepine, Childhood

KARBAMAZEPİNİN KORE TEDAVİSİNDEKİ YERİ

ÖZET

Amaç: Çocuklarda kore tedavisinde karbamazepinin etkinliğini incelemek.

Hastalar ve Yöntem: Kore tanısı alan ortalama yaşları 11.5 yaş olan üçü kız, üçü erkek altı hasta karbamazepin (5-20 mg/kg/gün)ile tedavi edildi. Tedaviye yanıt el yazısı ve Arşimed spiral testindeki değişiklikler temel alınalarak değerlendirildi.

Bulgular: Tüm hastalarda ilk iki hafta içinde belirgin klinik düzelme gözlendi. Dört hastada kore tamamen kaybolurken, iki hastada belirgin iyileşme görüldü. Yan etki saptanmadı.

Sonuç: Karbamazepin çocuklarda kore tedavisinde etkili ve güvenilir bulunmuştur.

Anahtar Kelimeler: Kore, Karbamazepin, İstemsiz hareket, Çocuk

INTRODUCTION

Chorea is an involuntary movement, sometimes difficult to treat, resulting from more than a hundred causes and Sydenham chorea is the most frequent form of acquired chorea during childhood[1]. Although multiple drugs have been used in the treatment of chorea in children, no adequate data is available based on randomized, controlled studies about their doses, effects as well as the duration of treatment[2-5]. Carbamazepine (CBZ) has been used in the treatment of movement disorders since 1969, however its effective dose and mechanism remain unclear[6]. Clinical findings of six patients with chorea taking carbamazepine therapy were reported and the results of published reports were evaluated.

METHODS

Six patients (three boys, three girls) between the ages of 8-15 (mean 11.5 years) were diagnosed as having chorea and treated by CBZ between September 2000 and June 2005. The etiologies of chorea were as follows: Sydenham chorea (n: 4), dyskinetic cerebral palsy (n:1), basal ganglia infarction due to antiphospholipid syndrome (n:1). The diagnosis of "Acute Rhematic Fever" was made on the basis of modified Jones criteria and all patients with Sydenham chorea had carditis. All of the children presented hemichorea except for the patient with dyskinetic syndrome. CBZ was used in two patients as the first line therapy, in four children

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who were unresponsive to haloperidole as a second choice drug. CBZ was started in 5mg/ kg/ day and the daily dose was increased until the involuntary movements seemed to decrease or disappear. Response to treatment was assessed based on improvement of hand-writing and Archimed spiral test as being mild or moderate improvement and complete remission.

RESULTS

Table I shows clinical findings and the patient responses to treatment. Clinical improvement was observed within the first two weeks of treatment in all patients and no side effects were seen. Chorea totally disappeared in four patients with Sydenham chorea, and the treatment was sustained between 7 – 14 months (mean 11.5).

Table I: Findings of patients treated with carbamazepine

Patient No	Age/ Gender	Etiology of chorea	Neurological findings	CBZ dose max. mg/kg/d	Duration of treatment (month)	Recurrence	Following period (month)
1	**14/M**	**Stroke Antiphospholipid antibody syndrome**	**Right hemiparesia, right hemichorea**	**20**	**48**	**-**	**48**
2	**15/F**	**Syndenham chorea**	**Left hemichorea**	**10**	**14**	**-**	**36**
3	**8/M**	**Syndenham chorea**	**Left hemichorea**	**20**	**7**	**-**	**9**
4	**11/M**	**Syndenham chorea**	**Left hemichorea**	**20**	**7**	**-**	**9**
5	**14/F**	**Kernicterus, dyskinetic cerebral palsy**	**Dyscoordination, generalized choreathetosis, motor retardation**	**10**	**48**	**-**	**48**
6	**15/F**	**Syndenham chorea**	**Right hemichorea**	**7**	**12**	**-**	**17**

Table II: Literature overview: Results of patients diagnosed as having chorea and treated with carbamazepine.

Authors	n	Age (yr)/ Sex	Etiology	CBZ dose (daily)	Duration of treatment	Side effect	Recurrence
Roig et al. (1988)	5		2 Sydenham C 1 Posttraumatology chorea Unknown etiology	?	3-36months	Rash	-
Harel et al (2000)	10	7-16 8F,2M	9 Sydenham's C 1 SLE,APS	4-10 mg/kg	1-15 months	-	2 cases
Genel et al. (2002)	17	5-14 15F,9M	Sydenham's C.	15 mg/kg	2-10 months	-	3 cases
Pena et al. (2002)	6	7-15 10F,8M	Sydenham's C.	15-20 mg/kg	1-14 months	-	1 case

Abbreviations:
F = Female M = Male
n = number of cases
Sydenham's C= Sydenham's Chorea
APS = Antiphospholipid antibody syndrome
SLE = Systemic lupus erythamatosus
CP= Cerebral palsy

As soon as the symptoms were under control, the dose of CBZ was tapered slowly. In the other two patients, chorea did not disappear totally but markedly improved and the patients' daily life quality concerning their capacity of using required motor fuction abilities (fine motor function) was better.

DISCUSSION

Neuroleptics (haloperidol, risperidone, fluphenazine) and antiepileptics (phenobarbital, clonazepam, valproate, carbamazepine) have often been used in the treatment of chorea. There are few studies regarding the clinical effects of these drugs, minimum effective doses, and therapeutic blood levels in childhood[2-5]. Table II shows the results of studies in the literature, demonstrating the effect of CBZ.

Harel et al. reported that clinical improvement occurred in children who were treated with low dose of CBZ (4-10 mg/kg/days) and blood levels of CBZ were under the required level for the treatment of epilepsy[2]. CBZ and valproate have been found equally effective and safe drugs in the treatment of Sydenham chorea[3,5]. The effective mechanism of carbamazepine to the basal ganglia is not obvious, but it is postulated that it could be through the blockage of dopaminergic postsynaptic receptors and through the stimulation of cholinergic pathways[4].

Most of the reported children treated with CBZ were diagnosed as Sydenham chorea, and the duration of treatment in these patients was reported as lasting 1-15 months. Similarly, none of our four patients with Sydenham chorea were treated longer than 14 months. However, our two patients with permanent chorea are still under treatment for 48 months. Knowledge in the literature about the duration of treatment in children with different etiology is still insufficient.

Based on the results of previous studies and our own results, we conclude that carbamazepine (4-20mg /kg /day) is an efficient and safe drug in the treatment of chorea. Because of the wide range of effective dose, CBZ should be started clinically in minimum effective doses and the dose may be increased until a sufficient clinical response is achieved.

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