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Oxcarbazepine May Be Useful in Sydenham Chorea

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Sydenham's chorea (SC) is the most common cause of chorea that develops as part of acute rheumatic fever after a latent period following group A hemolytic streptococcal pharyngitis infection in children aged 5-15 years. It is also a major symptom of acute rheumatic fever and is reported in 20% of the patients. In addition to symptomatic treatment with antipsychotics and antiepileptic drugs (AEDs), immunomodulatory treatments including steroids, intravenous immune globulin, and plasmapheresis have been demonstrated to be useful in SC. Carbamazepine (CBZ), valproic acid (VPA), benzodiazepines, and levetiracetam (LEV) are the main AEDs in SC.[1] Despite sharing similar action mechanisms and having fewer potential side effects, oxcarbazepine (OXC) has not been subject to any study in SC in the literature to the best of our knowledge. However, its effectiveness has been shown in paroxysmal kinesigenic dyskinesia (PKD), which is another chorea-related movement disorder.[2] In this article, we present the findings from 4 children with SC (3 girls) treated with OXC. Depending on the findings, we think that OXC may be an alternative drug in SC treatment with its rapid effects, good tolerability, and low side effect profile.

The patients (8-13 years of age; mean 10.5), all of whom presented with generalized chorea, were diagnosed with SC in the light of clinical and laboratory findings. All had a systolic murmur with mild to moderate mitral insufficiency in echocardiography. The patients were scored according to the Universidade Federal de Minas Gerais Sydenham's Chorea Rating Scale (Table 1). It was designed to provide a detailed quantitative description of the performance of activities of daily living, behavioral abnormalities, and motor function of subjects with SC. The scale comprises 27 items, and each one is scored from 0 (no symptom or sign) to 4 (severe disability or finding).[3] Oxcarbazepine treatment was given 18-22 mg/kg/day for 5-10 days and later on increased to 27-33 mg/kg/day (900-1200 mg/day, twice a day). The symptoms were improved by >50% with the first dose regimen and completely disappeared 1 week after OXC dose was increased. Oxcarbazepine treatment was continued for 3 months and then tapered off within a month. No side effect related to OXC treatment was observed during the treatment. No recurrence occurred at the end of the 2-year follow-up.

A well-known but a limited number of drugs have been recommended for the treatment of SC. Haloperidol was one of the most preferred drugs in SC treatment. Even though it can act quickly, it may cause side effects due to increased dopaminergic activity, and therefore, its use in pediatric patients is not recommended in some studies.[4] Carbamazepine is a structural analog of tricyclic antidepressants and phenothiazines. It is thought to act by blocking the levels of dopaminergic postsynaptic receptors. It is effective in antiepileptic doses. Harel et al.[5] reported complete remission with CBZ treatment (4-10 mg/kg/day) in 10 cases in 2-12 weeks and relapse in 3 cases in 1-15 months. Genel et al.[6] observed improvement with CBZ in 17 patients with SC in an average of 7.4 days (2-30 days). They achieved complete remission in 6.7 weeks (1-25 weeks) but reported that 17.6% of the patients had a recurrence. Valproic acid is the second most commonly used AED in the treatment of SC. It acts in anti-epileptic treatment doses like CBZ. In addition to hepatotoxicity, which is a well-known side effect of VPA, it is not recommended for the treatment of SC in long-term use in girls due to the risks of polycystic ovary syndrome, the development of premature plate ossification, and teratogenesis.[4] In recent years, LEV is effective in the treatment of

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Table 1. Changing in Symptoms with Oxcarbazepine Treatment According to the Universidade Federal de Minas Gerais Sydenham's Chorea Rating Scale[3]

Sections	Mean Score (Min-Max)	
	Before Treatment	After Treatment
I. Behavior	12 (10-14)	5.5 (4-6)
II. Activities of daily living	12.5 (10-18)	9 (8-10)
III. Motor assessment	26.5 (24-28)	12 (10-14)
Total score	51 (44-60)	26.5 (24-30)

SC. Direk et al.[7] reported that the effect of LEV started after 2 weeks because slow titration with the consideration of potential psychiatric side effects delayed the effect of the treatment. Levetiracetam acts through the synaptic vesicle protein 2A. Psychiatric problems such as obsession–compulsion, personality changes, emotional liability, irritability, anxiety, regressive behaviors, and anorexia are among the side effects of LEV treatment. Especially in patients with SC, after the movement problems are improved with LEV, psychiatric problems such as anxiety, depression, concentration, and processing speed difficulty persist at a high rate.[7,8] These potential side effects limit the use of LEV in cases with SC.

Oxcarbazepine, which is the 10-keto analog of CBZ and acts through sodium and calcium ion channels, has been successfully used in the treatment of PKD with its rapid effect and low side effect profile. Its proposed mechanism of action in SC is modulation of sodium and possibly of calcium channels.[2] It shows less side effect profile and also has better treatment compliance and tolerability than CBZ. Oxcarbazepine is not metabolized from the liver through the cytochrome-p450 system, which is another advantage over CBZ and VPA in terms of hepatotoxicity and drug interaction. The most common side effects related to OXC such as skin rashes, weakness, fatigue, and leukopenia are less common than CBZ as well.[9] Loss of appetite with weight loss and psychiatric side effects associated with LEV are seen less frequently with OXC. Despite that OXC has similar action mechanisms and side effect advantages, there is no research studying OXC in SC. However, our findings in a limited number of patients presented in this article suggest that OXC may be at least as effective as the other AED used in SC and has a lower side effect profile and hence may be a good alternative treatment in SC. We think that our observation would encourage double blind-controlled studies with OXC in SC.

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