

Case Report

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Focal Seizure in A Patient Receiving Terbutaline : A Case Report

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Terbutaline sulfate is a β_2 adrenergic agonist agent used in treatment of asthma. Terbutaline's adverse effects such as skeletal muscle tremor, tachycardia, hyperglycemia and various metabolic effects are mediated by beta-adrenoceptor stimulation. Terbutaline is not recommend use for children younger than 2 years of age. The case of a 44-day-old girl who experienced focal seizure following oral terbutaline sulfate use is presented. For exclusion of other causes of focal seizure, we used brain magnetic resonance imaging, and electroencephalography and it is concluded that focal seizure developed as a result of terbutaline sulfate use.

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β_2 receptors can be found in the lung tissue (respiratory tract, vascular smooth muscles, epithelial cells, glands and alveolar membrane), bronchi and uterus. Activation of β_2 receptors causes relaxation in vessels, bronchi and uterus. It causes restlessness, nervousness, headache [1]. Terbutaline is β_2 mimetic and used for its bronchodilator effect in asthma [2]. Terbutaline does not recommend use under 6 years of age.

Case

A 44-day-old male patient was admitted to our emergency department with the complaint of contraction in both lower extremities. There were no features in his prenatal, natal and postnatal history, and family history. It was learned that he was prescribed expectorant syrup containing terbutaline sulfate for cough that had continued for a few days. 45 minutes after the drug intake, it was learned that first unilateral contraction and pulsing movements started and spread to both lower extremities which lasted approximately 30 minutes intermittently. The patient, whose general condition was good and vital signs were stable, systemic and detailed neurological examination was normal. The patient was considered as a focal seizure and put under observation. During the follow-up of the patient, a focal seizure was observed in a single lower extremity that regressed spontaneously for a short time. Complete blood count, electrolyte values, liver and kidney function tests were found to be normal, and cranial imaging was reported to be normal. EEG was also normal

Discussion

Expectorants containing oral terbutaline sulfate are used to benefit from the bronchodilation effect when necessary over the age of 6 years. No seizures related to terbutaline intake have been reported, only a few cases have myoclonus after oral terbutaline

sulfate [3]. Side effects of terbutaline include tachyarrhythmia, restlessness, agitation, hallucination, and focal seizures. In our case, complaints appeared after drug intake, and did not recur after drug discontinuation, it was thought that the seizure was not an infantile partial seizure but a terbutaline sulfate side effect.

Many epilepsy syndromes characteristically occur in the first year of life. These types of epilepsy include mainly benign familial infantile epilepsy, infantile myoclonic epilepsy, and infantile spasms [4]. In most of these syndromes, specific waves are detected in the EEG. Benign focal (partial) epilepsies of childhood are electroclinical syndromes of unknown or genetic causes that occur in developmentally and neurologically normal children. One of them is focal seizures with altered consciousness (also called complex partial seizures) and the other is focal seizures that develop into bilateral convulsive seizures that start between 3-10 months. Half of these patients have a family history of infantile seizures. Interictal eeg is normal. Ictal eeg shows temporal-originated rhythmic focal discharges in complex partial seizure variant and central rhythmic focal discharges in those with secondary generalized seizure variant [5].

Since our patient had normal neurodevelopment, family history, cranial imaging and EEG examinations were normal, infantile epilepsy was not considered in the first diagnosis.

As a result, terbutaline sulphate which can be preferred in the treatment of lower respiratory track infections could cause focal seizures. Usage of terbutaline should be questioned in patients with focal seizure as one of the rare causes [6].

References

1. Liggett SB (2002) Update on current concepts of the molecular basis of β_2 -adrenergic receptor signalling. *J Allergy Clin Immunol* 110: 223–228

2. Larsson S, Svedmyr N (1977) Tremor caused by sympathomimetics is mediated by beta2-adrenoreceptors. Scand J Respir Dis 58: 5-10.
3. Emel Ataş Berksoy, Ünsal Yılmaz, Tanju Çelik, Nagehan Katipoğlu, Recep Kahramener, et al. (2015) Forty-Five-Day-Old Girl With Myoclonus After Oral Terbutaline Sulfate Treatment. J Kartal Tr 26: 248-250.
4. Wilmshurst JM, Burman R, Gaillard WD, Cross JH (2015) Treatment of infants with epilepsy: Common practices around the world. Epilepsia 56: 1033- 46.
5. Glass HC, Shellhaas RA (2019) Acute Symptomatic Seizures in Neonates, Semin Pediatr Neurol 32: 100768.
6. Am J Dis (1982) Seizures in a patient receiving terbutaline. Child 136: 1091.

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