Plant Oil Inhalation Induced Seizures: A Less Known Entity

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To the Editor: A four-year-old, premorbid normal boy presented with the first episode of generalized tonic-clonic seizures lasting for three minutes. The child had a two-day history of common cold prior to the ictus. He was born to a non-consanguineous couple with an uneventful perinatal period. His past and family history was uninformative. Focused history revealed a noteworthy antecedent. As per the mother, the child was subjected to steam inhalation from a bowl of water mixed with four drops of eucalyptus oil for relief of common cold. Within three minutes of inhalation, the child fell down and had tonic-clonic convulsions for five minutes. He had never inhaled eucalyptus oil in the past. Examination was essentially normal. A clinical diagnosis of Essential oil-induced acute symptomatic seizure was considered. His electroencephalogram was unremarkable. He was continued on sodium valproate for 14 d. At six months follow up, the child is doing well with no recurrence of seizures.

Eucalyptus oil is an over-the-counter essential oil primarily used in the remedy of common cold and sinusitis in resource-limited settings [1]. Eucalyptus oil is a plant-based essential oil with the principal constituent being oxygenated monoterpene (cineole) which comprise >70% of the contents. The epileptogenic properties of these monoterpenes in a dose dependent and idiosyncratic fashion has been well established in animal studies [2]. Loss of sodium-potassium gradient with increased cellular excitability is the postulated mechanism [2, 3]. The primary mode of exposure in children is accidental ingestion and this history is, in general, forthcoming at the time of hospital visit. Our index child is unique because of

the unusual mode of exposure, direct steam inhalation. Inhalation induced seizure is an under-recognized cause of the acute symptomatic seizure [4, 5]. The rapid onset of action in our index case deserves special attention. Direct entry to the brain following inhalation is the possible explanation for this fulminant onset. The neurological spectrum of eucalyptus oil exposure encompasses focal and generalized seizures; status epilepticus; afebrile encephalopathy and ataxia. It is pertinent to elicit a history of essential oil exposure via steam inhalation in children presenting with the first episode of seizure following a trivial viral prodrome. This not only averts the wrongful diagnosis of “Idiopathic epilepsy” or “Febrile seizures” but also obviates the need for long term anti-epileptic medication.

Our case underlines the possible convulsant properties of household herbal medicine and attempts to create awareness among healthcare professionals on the risks involved in the exposure.

Compliance with Ethical Standards

Conflict of Interest None.

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