

The slow-flat-slow sequence in malignant vasovagal syncope

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ABSTRACT

We present the electroencephalographic and electrocardiographic tracing obtained in an 8-year old boy who experienced malignant vasovagal syncope during the recording. This tracing illustrates the highly specific “slow-flat-slow” sequence described in cases of syncope induced by severe cerebral hypoperfusion.

Keywords: Asystole, convulsive syncope, electroencephalogram, malignant vasovagal syncope

An 8-year-old boy was evaluated with electroencephalogram (EEG) for suspicion of seizures after recurrent episodes of loss of consciousness with myoclonic jerks. An episode occurred during the recording and was due to prolonged asystole diagnosing cardio-inhibitory malignant vasovagal syncope [Figure 1]. Asystole

induced EEG changes were as follows: at the beginning of the recording, normal activity (alpha waves) is replaced by slow waves with increased amplitude (delta waves), then a sudden flattening of the EEG occurs for several seconds until the resurgence of slow waves followed by a normalization of the cerebral activity.

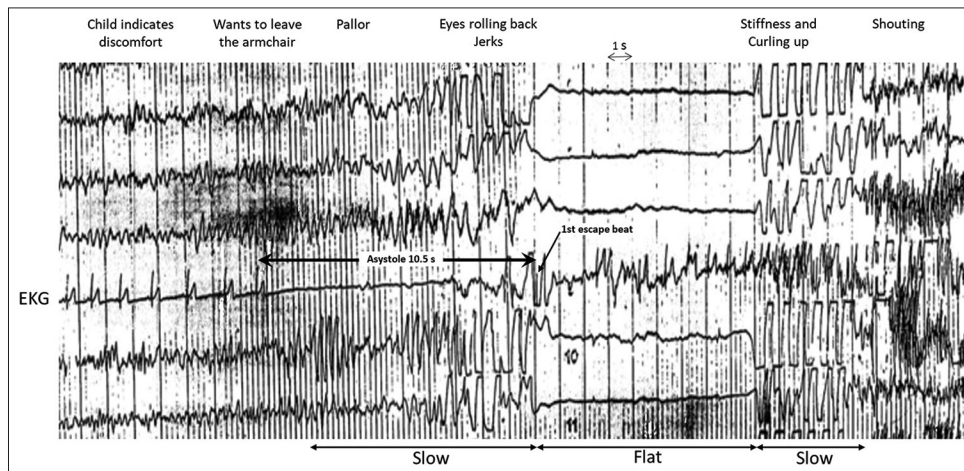


Figure 1: EEG recording and EKG lead during syncope. Annotations of the technician are reproduced above the recording. EEG slowing starts in response to an asystole lasting for 10.5 s with occurrence of slow large delta waves and the EEG flattens for a similar period but with a delay. Then EEG modified in the reverse order as the cardiac rhythm normalized. Myoclonic jerks occurred during recording causing artifacts on EKG. The boy regained consciousness as the EEG activity normalized. EEG: Electroencephalogram

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DOI:

10.4103/apc.APC_105_20

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How to cite this article: Vaksmann G, Bouzguenda I, Lamblin MD. The slow-flat-slow sequence in malignant vasovagal syncope. *Ann Pediatr Card* 2021;14:128-9.

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Submitted: 10-May-2020

Revised: 30-Aug-2020

Accepted: 21-Sep-2020

Published: 19-Nov-2020

Vasovagally mediated asystole can induce seizure-like syncope, the so-called convulsive syncope.^[1] The EEG recording in our patient illustrates nicely the highly specific “slow-flat-slow” sequence described on EEG in case of syncope induced by severe transient cerebral hypoperfusion.^[2-4] In this sequence, the normal alpha rhythm gives way to large and slow waves, the delta waves, that are usually associated with the deep stage 3 of nonrapid eye movement sleep. Then this slow activity disappears abruptly, leaving a flat EEG. The recovery of the cerebral perfusion leads to the same phenomenon in reverse order. This observation also illustrates the need to record an EKG lead simultaneously with EEG channels when evaluating a patient for seizure or syncope.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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