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## **Clinical-electroencephalogram patterns at seizure onset in patients with hippocampal sclerosis.**

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### **Abstract**

#### **OBJECTIVE:**

The purpose of this study is to identify specific clinical-electroencephalogram (EEG) patterns at seizure onset in patients with hippocampal sclerosis (HS).

#### **METHODS:**

Sixty-six ictal video-EEG recordings corresponding to 26 patients with HS have been reviewed, focusing on the EEG features found during the first 30 ictal s. The EEG activity has been classified into the following groups: (A) according to spatial distribution: type 1: temporal electrodes on one side; type 2: temporal and adjacent frontal electrodes on one side; and type 3: non-lateralizing electrographic activity; and (B) according to morphology; subtype (a): regular 5-9 Hz rhythmic activity (RA); subtype (b): low-voltage rapid activity, followed by a 5-9 Hz RA; and subtype (c): irregular EEG sharp waves. We analyzed the clinical symptoms sequence and established the relationship with the ictal EEG patterns.

#### **RESULTS:**

Considering spatial distribution and morphology, the most frequent ictal EEG patterns were type 1 (57%), type 2 (37%), and subtype (a): 62%; subtype (b): 27%; and subtype (c): 11%. The sequence of clinical symptoms observed was: aura-->behavioral arrest-->oro-alimentary automatisms-->unilateral hand automatisms. All seizures with aura and including two or more symptoms of the clinical sequence (65%) were associated with a 1a, 1b, 2a or 2b EEG pattern.

#### **CONCLUSIONS:**

The identification of a specific clinical-EEG pattern provides a useful tool for the epileptogenic zone localization in non-invasive pre-surgical assessment of patients with hippocampal sclerosis.

#### **SIGNIFICANCE:**

The identification of a specific clinical-EEG pattern associated to neuroimaging findings and neuropsychological testing allows indicating surgery for the treatment of epilepsy in patients with hippocampal sclerosis, without performing any further complementary studies.

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