Introduction: Diagnosis of epilepsy in some cases can be challenging due to different seizure types as well as imitators of epilepsy. Misdiagnosis can lead to unnecessary long-term antiepileptic drug (AED) treatment.

Objectives of the study were:
1. determine the rate of false-positive diagnosis of epilepsy in children with the previously established diagnosis;
2. analyze the clinical and electroencephalographic (EEG) features in children with a misdiagnosed epilepsy;
3. determine the most common cause of misdiagnosis of epilepsy in children;

Patients and methods:
Our research involved a ten-year-long period and the total number of 1011 children with a diagnosis of epilepsy at the time of the first consultation in our Clinic. In the case of misdiagnosis of epilepsy, AEDs were discontinued.

Misdiagnosis of epilepsy
101/1011 patients (55 boys / 46 girls) 9.99%

Causes of misdiagnosis of epilepsy

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEG interpretation</td>
<td>39.6</td>
</tr>
<tr>
<td>Clinical interpretation</td>
<td>23.8</td>
</tr>
<tr>
<td>Both EEG and clinical interpretation</td>
<td>36.6</td>
</tr>
</tbody>
</table>

EEG – time of diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>95%</td>
</tr>
<tr>
<td>Abnormal</td>
<td>5%</td>
</tr>
</tbody>
</table>

- generalized EEG abnormalities   | 31.7%
- (multi) focal EEG abnormalities | 4%
- (multi) focal EEG abnormalities | 24.8%
- generalized EEG abnormalities  | 1%
- other                          | 22.8%

Our study supports the view that the misdiagnosis of epilepsy is not rare. There is a need for a better:
- understanding of clinical features of non-epileptic seizures/ events/ conditions in children, which are more frequent than epileptic
- knowledge of the physiological variants of electroencephalographic activities in wakefulness and sleep that are often assessed as "epileptiform" changes

References:
Oto MM. The misdiagnosis of epilepsy: Appraising risks and managing uncertainty. Seizure. 2017 Jan;44:143-146.