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ORIGINAL ARTICLE

Risk of recurrence after a first unprovoked seizure in children☆

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KEYWORDS
Seizures;
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Abstract
Objectives: This study aimed to evaluate the first episode of unprovoked epileptic seizure in children and assess recurrence risk factors.
Methods: This was a retrospective observational study, based on the analysis of medical records of patients admitted between 2003 and 2014, with first epileptic seizure, at the pediatric service of a secondary hospital. The data were analyzed using the SPSS 20.0 program.
Results: Of the 103 patients, 52.4% were boys. The median age at the first seizure was 59 (1–211) months. About 93% of children were submitted to an electroencephalogram at the first episode and 47% underwent neuroimaging assessment. Treatment with an antiepileptic drug was started in 46% of patients. The recurrence rate was 38% and of these, 80% had the second seizure within six months after the first event. Of the assessed risk factors, there was a statistically significant association between seizure during sleep and recurrence ($p = 0.004$), and between remote symptomatic etiology seizure and occurrence of new seizure ($p = 0.02$). The presence of electroencephalogram abnormalities was also associated with the occurrence of new seizures ($p = 0.021$). No association was found between age, duration of the seizure, and family history of epilepsy with increased risk of recurrence.
Conclusions: Most children with a first unprovoked epileptic seizure had no recurrences. The risk of recurrence was higher in patients with seizure occurring during sleep or remote symptomatic ones and those with abnormal electroencephalogram results.

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PALAVRAS-CHAVE
Convulsão;
Primeira crise não provocada;
Recorrência;
Criança

Risco de recorrência após uma primeira crise epilética não provocada em idade pediátrica

Resumo

Objetivos: Este trabalho teve como objetivos estudar o primeiro episódio de crise epilética não provocada em idade pediátrica e avaliar os fatores de risco de recorrência.
Métodos: Estudo observacional retrospectivo, baseado na análise dos processos clínicos dos pacientes internados entre 2003 e 2014, num serviço de pediatria de um hospital de nível 2, com primeira crise epilética. Os dados foram trabalhados com o programa *SPSS Statistics* 20.0.
Resultados: Dos 103 pacientes, 52,4% eram meninos. A mediana da idade da primeira crise foi 59 (1-211) meses. Cerca de 93% das crianças realizaram eletroencefalograma no primeiro episódio e 47% realizaram neuroimagem. O tratamento com fármaco antiepilético foi instituído em 46% dos pacientes. A taxa de recorrência foi 38% e, destes, 80% tiveram a segunda crise nos 6 meses seguintes após o primeiro evento. Dos fatores de risco estudados verificou-se uma relação estatisticamente significativa entre a crise durante o sono e a recorrência (p = 0,004), assim como entre as crises de etiologia sintomática remota e a ocorrência de novas crises (p = 0,02). A presença de anormalidades no eletroencefalograma também esteve associada à ocorrência de novas crises (p = 0,021). Não se encontrou relação entre idade, duração da crise e história familiar de epilepsia com risco aumentado de recorrência.
Conclusões: A maioria das crianças com uma primeira crise epilética não provocada não teve recorrências. O risco de recorrência foi superior nos pacientes com crise durante o sono ou crise sintomática remota e naqueles com eletroencefalograma alterado.

Introduction

Epileptic seizures are one of the most common neurological problems in children. It is estimated that approximately 50% of children and adolescents who have a first epileptic seizure will have one recurrence.[1] Knowledge of the natural history after a first unprovoked epileptic seizure and risk factors for recurrence are essential to establish treatment and follow-up criteria. Over the years, several authors have suggested recurrence predictors,[2–4] such as age at the first seizure, gender, family and perinatal history, seizure characteristics, and electroencephalogram (EEG) results, among others. However, the studies are not always consensual and those found in Portugal on this topic are still scarce. Pereira et al.[5] evaluated 200 children with a first episode of unprovoked epileptic seizure during a 15-year period. According to their study, which was carried out in Portugal, 30% of the children developed epilepsy, with focal seizures and EEG alterations being associated with increased risk of recurrence. These authors found no association between history of febrile seizures, neonatal complications, and family history of epilepsy with increased risk of recurrence.

The present study aimed to assess the first episode of unprovoked epileptic seizure in pediatric patients, as well as the recurrence risk factors.

Methods

Study design and population sample

This was a retrospective observational study, based on the assessment of medical records of patients admitted to a secondary hospital in Portugal between October 2003 and June 2014. This study included patients at the pediatric age range (<18 years) with a suspected first episode of epileptic seizure. Patients younger than 28 days of life and those in whom an acute causative factor for the seizure was identified were excluded. Children with seizures with symptomatic etiology in whom an acute causative factor was not identified were included.

Study protocol

The definitions used were based on the criteria and classifications published by the International League Against Epilepsy (ILAE),[6] after some adjustments. The diagnosis of first unprovoked epileptic seizure was established by the physician who treated the child, considering the described and/or displayed signs and symptoms. The seizure was classified as unprovoked when an acute causative factor was not identified for the seizure (*e.g.*, head trauma, fever, hyponatremia, hypocalcemia, and toxin exposure, among others). A seizure was considered as remote symptomatic when there was no immediate cause, but the child had a prior history of neurological injury, such as chronic non-progressive encephalopathy or stroke, leading to a static lesion. It was not possible to retrospectively distinguish between an idiopathic and a cryptogenic seizure in all children.

Regarding the type of seizure, they were classified as focal (which were differentiated into focal without consciousness alterations, focal with consciousness alterations, and focal with secondary generalization) or generalized seizures (differentiated into absence seizures, myoclonic, clonic, tonic, tonic–clonic, and atonic seizures). A seizure was considered to be undetermined when, considering the