



REVIEW ARTICLE

Management protocols for status epilepticus in the pediatric emergency room: systematic review article[☆]

Q1 Cheuk C. Au^{a,b}, Ricardo G. Branco^{c,*}, Robert C. Tasker^{a,d}

^a Boston Children's Hospital, Department of Anesthesiology, Perioperative and Pain Medicine, Division of Critical Care Medicine, Boston, United States

^b Queen Mary Hospital, Department of Paediatric and Adolescent Medicine, Hong Kong, China

^c Cambridge University Hospitals NHS Trust, Paediatric Intensive Care Unit, Cambridge, United Kingdom

^d Boston Children's Hospital, Department of Neurology, Boston, United States

Received 7 June 2017; accepted 2 August 2017

KEYWORDS

Status epilepticus;
Seizure;
Protocol;
Guideline

Abstract

Objective: This systematic review of national or regional guidelines published in English aimed to better understand variance in pre-hospital and emergency department (ED) treatment of status epilepticus.

Sources: Systematic search of national or regional guidelines (January 2000 to February 2017) contained within PubMed and Google Scholar databases, and article reference lists. The search keywords were status epilepticus, prolonged seizure, treatment, and guideline.

Summary of findings: 356 articles were retrieved and 13 were selected according to the inclusion criteria. In all six pre-hospital guidelines, the preferred route of medication administration was to use alternatives to the intravenous route: all recommended buccal and intranasal midazolam; three also recommended intramuscular midazolam, and five recommended using rectal diazepam. All 11 ED guidelines described three phases in therapy. Intravenous medication, by phase, was indicated as such: initial phase – ten/11 guidelines recommended lorazepam, and eight/11 recommended diazepam; second phase – most (ten/11) guidelines recommended phenytoin, but other options were phenobarbital (nine/11), valproic acid (six/11), and either fosphenytoin or levetiracetam (each four/11); third phase – four/11 guidelines included the choice of repeating second phase therapy, whereas the other guidelines recommended using a variety of intravenous anesthetic agents (thiopental, midazolam, propofol, and pentobarbital). **Conclusions:** All of the guidelines share a similar framework for management of status epilepticus. The choice in route of administration and drug type varied across guidelines. Hence, the

[☆] Please cite this article as: Au CC, Branco RG, Tasker RC. Management protocols for status epilepticus in the pediatric emergency room: systematic review article. J Pediatr (Rio J). 2017. <http://dx.doi.org/10.1016/j.jpmed.2017.08.004>

* Corresponding author.

E-mail: ricardogarcia.branco@addenbrookes.nhs (R.G. Branco).

<http://dx.doi.org/10.1016/j.jpmed.2017.08.004>

0021-7557/© 2017 Published by Elsevier Editora Ltda. on behalf of Sociedade Brasileira de Pediatria. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

31
32
33
34
35

36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64**PALAVRAS-CHAVE**Estado de mal
epiléptico;
Convulsão;
Protocolo;
Diretriz

adoption of a particular guideline should take account of local practice options in health service delivery.

© 2017 Published by Elsevier Editora Ltda. on behalf of Sociedade Brasileira de Pediatria. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Protocolos de manejo de estado de mal epiléptico no pronto socorro pediátrico: análise sistemática

Resumo

Objetivo: Esta análise sistemática de diretrizes nacionais ou regionais publicadas em inglês tem como objetivo entender melhor a diferença no tratamento do estado de mal epiléptico pré-hospitalar e no departamento de emergência (DE).

Fontes: Pesquisa sistemática de diretrizes nacionais ou regionais (janeiro de 2000 a fevereiro de 2017) contidas nas base de dados do Pubmed e do Google Acadêmico e listas de referência de artigos. As palavras-chave da busca foram estado de mal epiléptico, convulsão prolongada, tratamento e diretriz.

Resumo do achados: 356 artigos foram identificados, e 13 foram selecionados de acordo com os critérios de inclusão. Em todas as seis diretrizes pré-hospitalares, o caminho preferencial de administração da medicação foi utilizar alternativas à via intravenosa: todas recomendaram midazolam bucal e intranasal; três também recomendaram midazolam intramuscular; e cinco recomendaram utilizar o diazepam via retal. Todas as onze diretrizes de descreveram três fases na terapia. No que diz respeito à medicação intravenosa, por fase, temos: fase inicial – 10/11 diretrizes recomendaram lorazepam e 8/11 recomendaram diazepam; segunda fase – a maioria (10/11) das diretrizes recomendou fenitoína, porém outras opções foram fenobarbital (9/11), ácido valproico (6/11) e fosfenitoína ou levetiracetam (individualmente, 4/11); terceira fase – 4/11 diretrizes incluíram a opção de repetir a terapia da segunda fase, ao passo que as outras diretrizes recomendaram utilizar diversos agentes anestésicos intravenosos (tiopental, midazolam, propofol e pentobarbital).

Conclusões: Todas as diretrizes compartilham uma estrutura semelhante para manejo do estado de mal epiléptico. A escolha da via de administração e do tipo de medicamento variou em todas as diretrizes. Assim, a adoção de uma diretriz específica deve levar em consideração as opções da prática local na prestação de serviços de saúde.

© 2017 Publicado por Elsevier Editora Ltda. em nome de Sociedade Brasileira de Pediatria. Este é um artigo Open Access sob uma licença CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Status epilepticus (SE) is defined as “a condition resulting either from the failure of mechanisms responsible for seizure termination or from the initiation of mechanisms which lead to abnormally prolonged seizures (after time point t_1), and a condition that can have long-term consequences (after time point t_2), including neuronal death, neuronal injury, and alteration of neuronal networks, depending on the type and duration of seizures, etc. In the case of convulsive (tonic-clonic) SE, both time points (t_1 at 5 min and t_2 at 30 min) are based on animal experiments and clinical research”.¹

Therefore, in children, there are two subgroups of patients presenting with a seizure: those with brief episodes <5 min duration (before t_1) that are highly likely to resolve without treatment; and those with episodes >7 min, who are more likely to progress to prolonged episodes necessitating acute treatment to stop the seizure. The consensus of the International League Against Epilepsy (ILAE) task force on the classification of SE is that treatment of convulsive seizures should therefore be initiated at around 5 min.¹

This article discusses some of the issues related to emergency anticonvulsant treatment of acute, prolonged seizures and SE in children with particular emphases on pre-hospital, emergency medical services (EMS), and emergency department (ED) guidelines, as well as protocols used by national and regional societies, organizations, and authorities. The reader interested in other management, investigations, and subsequent clinical follow-up in the outpatient department or by the primary care practitioner should review recent practice reviews and the American Academy of Neurology recommendations.^{2,3}

Methods

Source of data

A systematic review of articles available in the PubMed and Google Scholar databases was carried out. Reference lists of articles identified were also checked. The search strategy included the combination of the following keywords in

Download English Version:

<https://daneshyari.com/en/article/8809861>

Download Persian Version:

<https://daneshyari.com/article/8809861>

[Daneshyari.com](https://daneshyari.com)