

Absence seizures in children and teenagers: ethosuximide, valproate or lamotrigine? A systematic review from 1999 to 2021

Apreensões de ausência em crianças e adolescentes: etosuximida, valproato ou lamotrigina? Uma revisão sistemática de 1999 a 2021

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ABSTRACT

The onset of AS generally occurs during childhood or adolescence, and it is the most prevalent convulsion in 15 to 20% of epileptic children. Historically, first-line drugs in pediatric AS are Ethosuximide (ETX), Valproic Acid (VPA), and Lamotrigine (LTG). This review aims to determine the best pharmacological therapy for pediatric AS, considering that all three drugs have been established as superior to placebo.

RESUMO

O início do AS geralmente ocorre durante a infância ou adolescência, e é a convulsão mais prevalente em 15 a 20% das crianças epiléticas. Historicamente, os medicamentos de primeira linha no AS pediátrico são Etosuximida (ETX), Ácido Valpróico (VPA), e Lamotrigina (LTG). Esta revisão visa determinar a melhor terapia farmacológica para o AS pediátrico, considerando que todas as três drogas foram estabelecidas como superiores ao placebo.

1 INTRODUCTION

Absence seizures (AS) are generalized onset seizures, classified as typical or atypical.

2 OBJECTIVE

Evaluate available treatments for AS in pediatrics based on the current scientific literature.

3 METHODS

A systematic review of literature was done with searches into Web of Science and PubMed (MEDLINE) databases, using the descriptors listed in Descritores em Ciências da Saúde (DeSC) e Medical Subject Headings (MeSH): “absence seizures”, “absence epilepsy” and “drug therapy”. 988 articles were found, of which 216 were duplicates. 4 researchers read the titles and abstracts of the remaining 772 articles and, at last, 50 which contemplated our study were selected.

4 RESULTS

3 studies support ETX as first-line drug in AS treatment, 5 claim it is superior to LTG due to a higher efficacy or tolerability, 9 claim it is similarly superior to VPA, while 3 have found ETX and VPA to be similar in efficacy and tolerability. 4 studies support VPA as first or second-line drug, and 10 claim worse prognosis in the event of VPA therapeutic failure. 4 studies claim VPA is superior to LTG, and 1 claims there is no difference between them. 1 study claims VPA increases odds of cognitive loss. 3 studies considering LTG as an adequate first-choice drug have conflicts of interests, and 7 demonstrate low tolerability to the drug. Studies on combined VPA+LTG therapy are scarce, but 2 studies found that it is superior to all monotherapies. Many studies didn't discriminate between childhood (CAE) and juvenile absence epilepsy (JAE), but those that did found VPA to be the best choice for JAE as it is also effective against other kinds of seizures, which occur frequently in this disorder.

5 CONCLUSIONS

In patients who only present AS, studies show that ETX is not only more effective but also a safer drug, especially in CAE. In patients with associated epilepsies, VPA is recommended. LTG appears to have the worst acceptability profile of the three and requires

a longer period of treatment to achieve therapeutic results. We acknowledge that data unification across studies is difficult due to their divergent methodologies

FIGURES AND CHARTS

Figure 1. Flowchart of article selection

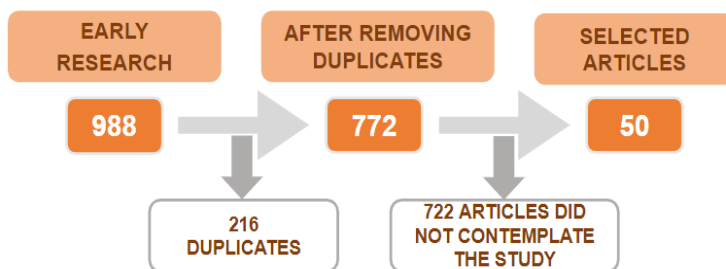


Chart 1. LTG: Lamotrigine; AS: Absence Seizures; CAE: Children Absence Epilepsy; JAE: Juvenile Absence Epilepsy); *Conflict of interest (research funded by Lamictal™ manufacturer, or author is shareholder)

Pharmaceutical therapy	Recommendations	References supporting recommendations statements	References which report tolerability impairing adverse effects
ETX	First-line drug in AS treatment, specially CAE	6, 9, 17, 30, 35, 37, 40, 42, 46, 48, 49	2, 6, 11, 12, 13, 19, 27, 34, 40, 45
VPA	Advised drug in JAE as other seizures frequently occur associated	4, 6, 9, 16, 17, 21, 22, 30, 31, 33, 35, 40, 42, 46, 48	2, 6, 7, 8, 10, 11, 20, 26, 27, 28, 40, 47, 50
LTG	Worst acceptability profile, except for 2 articles	4, 6, 9, 16, 17, 22, 25*, 30, 35, 40, 42, 46, 48	2, 3*, 6, 11, 14*, 18*, 23, 27, 40
VPA + LTG	Scarce studies support it outdoes monotherapy.	21, 31, 40	24, 40

Palavras-Chave: “Absence seizures”, “Absence epilepsy”, “Ethosuximide”, “Valproic acid”, “Lamotrigine”, “Drug therapy”

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