

Associations of antiepileptic drugs with anxiety and depressive symptoms in pediatric epilepsy

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Psychopathology in epilepsy

- Epilepsy-rated phenomenon (e.g. a presenting feature of epileptic seizures) or
- Comorbidity (e.g. depression).
- Specific psychopathology as an outcome of the interplay of various factors .
- Added values of antiepileptic drugs (AEDs).

Antiepileptic drugs (AEDs)

- AEDs psychotropic effects - beneficial and adverse - on emotions, cognitions, and behaviors in epilepsy.
- Enhancement of GABA leading to sedating/anxiolytic/depressiogenic effects or the blockage of glutamate leading to activating/anxiogenic/antidepressive effects.

A pilot study

- To evaluate associations of AEDs and other major factors with anxiety and depressive symptoms.
 - A generalized linear model was created from the data of 54 children with epilepsy completing the Screen for Child Anxiety Related Emotional Disorders (SCARED) and Mood and Feeling Questionnaire (MFQ).
 - Nine children taking carbamazepine (CBZ), 25 valproate (VPA), five lamotrigine (LTG), and 15 two/three AEDs (COMB)
- Main results:** Age, type of epilepsy, seizure frequency, epilepsy duration, AEDs, depressive symptoms, and interaction among these variables accounted for 66.9% of the variations in anxiety symptoms ($F = 6.99, p < 0.0001$). The same set of variables, with anxiety instead of depressive symptoms, accounted for 60.7% of the variations in depressive symptoms ($F = 5.28, p < 0.0001$).

Associations of specific AEDs with anxiety and depressive symptoms

Anxiety symptoms	
AED*other variables	T test (p value)
Carbamazepine	- 1.15 (0.26)
Valproate	1.04 (0.30)
Lamtrigine	- 1.39 (0.14)
COMB	- 3.06 (0.004)

Depressive symptoms	
AED*other variables	T test (p value)
Carbamazepine	0.35 (0.76)
Valproate	- 0.84 (0.40)
Lamtrigine	- 1.07 (0.29)
COMB	1.39 (0.17)

Conclusions and future study

- There is an added value of AEDs in expression of anxiety or depressive symptoms in children with epilepsy.
 - Taking two/three AEDs was significantly associated with lower levels of anxiety symptoms.
 - VPA associated with decreased not only increased depressive symptoms; LTG associated with increased both symptoms; CBZ associated with increased anxiety, but decreased depressive symptoms.
 - A follow-up study needed with newly diagnosed epilepsy and AEDs in relationships with specific symptoms.
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