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

Dejan Stevanović, Jasna Jancić

aGeneral Hospital Sombor, bClinic for Neurology and Psychiatry for Children and Youth, Belgrade, Serbia, email: dejanstevanovic@eunet.rs

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

<table>
<thead>
<tr>
<th>AED*other variables</th>
<th>Anxiety symptoms</th>
<th>T test (p value)</th>
<th>Depressive symptoms</th>
<th>T test (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>- 1.15 (0.26)</td>
<td></td>
<td>Carbamazepine</td>
<td>0.35 (0.76)</td>
</tr>
<tr>
<td>Valproate</td>
<td>1.04 (0.30)</td>
<td></td>
<td>Valproate</td>
<td>- 0.84 (0.40)</td>
</tr>
<tr>
<td>Lamotrigine</td>
<td>- 1.39 (0.14)</td>
<td></td>
<td>Lamotrigine</td>
<td>- 1.07 (0.29)</td>
</tr>
<tr>
<td>COMB</td>
<td>- 3.06 (0.004)</td>
<td></td>
<td>COMB</td>
<td>1.39 (0.17)</td>
</tr>
</tbody>
</table>

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.

Disclosure: No potential conflict of interest to this study.