Systemic inflammatory response syndrome influences short-term mortality in status epilepticus

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Purpose
Short-term status epilepticus outcome is determined mainly by age and etiology. Recently, the role infectious comorbidity plays in status epilepticus prognosis has gained a lot of attention, which produced conflicting evidence regarding its importance. We aimed to see whether infections, their severity and treatment strategy may influence survival of patients with status epilepticus.

Method
We carried out a retrospective evaluation of clinical, radiologic and neurophysiologic parameters potentially affecting status epilepticus outcome in a cohort of adult patients admitted to our institution between 2003 and 2013. Case definition was based on EEG criteria.

Results
A total of 146 cases fulfilled inclusion criteria (64% female sex), with a mean age of 74 years (range 18-101). Short-term mortality was 38%. Multivariable analysis revealed the following negative prognostic predictors: age (Odds ratio (OR): 1.1, \( p < 0.001 \)), acute symptomatic etiology (OR: 5.5, \( p = 0.007 \)), systemic inflammatory response syndrome (OR: 5.9, \( p = 0.002 \)). Infectious complications did not emerge as a significant determinant in multivariate analysis, as well as antibiotic regimens established either before or after status epilepticus occurrence.

Demography
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>146</td>
</tr>
<tr>
<td>Male (%)</td>
<td>53 (36%)</td>
</tr>
<tr>
<td>Female (%)</td>
<td>93 (64%)</td>
</tr>
<tr>
<td>Age (range)</td>
<td>74 (18-101)</td>
</tr>
<tr>
<td>Number of day of hospitalization (range)</td>
<td>24 (3-163)</td>
</tr>
<tr>
<td>SE at the admission (%)</td>
<td>58 (40%)</td>
</tr>
</tbody>
</table>

Etiology
- Acute symptomatic (32%)
- Remote symptomatic (23%)
- Progressive Symptomatic (30%)
- Non structural (30%)

Comorbidity
- Cardiovascular diseases (62 (42%))
- Respiratory diseases (11 (7%))
- Renal diseases (21 (14%))
- Gastrointestinal diseases (20 (14%))
- Metabolic diseases (48 (33%))
- Psychiatric diseases (20 (14%))
- Extracerebral cancers (12 (8%))

Drug and alcohol abuse
- Antiepileptic drugs (50 (44%))
- Other drugs influencing CNS (87 (60%))
- Alcohol abuse (19 (13%))

Development of recovery
- SIRS (58 (40%))
- Infective complications (62 (47%))
- Non infective complications (49 (34%))

Prognosis
- Mortality (64 (44%))

Distribution

Statistic analysis
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Univariate analysis significativity (p value)</th>
<th>Multivariate analysis significativity (p value)</th>
<th>Odds Ratio (IC, 95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.001</td>
<td>0.001</td>
<td>1.094 (1.039-1.151)</td>
</tr>
<tr>
<td>Extracerebral cancers</td>
<td>0.004</td>
<td>0.001</td>
<td>51.261 (2.765-950,416)</td>
</tr>
<tr>
<td>Acute symptomatic etiology</td>
<td>0.001</td>
<td>0.007</td>
<td>5.502 (1.609-18,807)</td>
</tr>
<tr>
<td>SIRS</td>
<td>0.0001</td>
<td>0.002</td>
<td>5.943 (1.948-18,168)</td>
</tr>
<tr>
<td>Infective complications</td>
<td>0.0001</td>
<td>//</td>
<td>//</td>
</tr>
<tr>
<td>Non infective complications</td>
<td>0.001</td>
<td>//</td>
<td>//</td>
</tr>
<tr>
<td>Onset of SE during the hospitalization</td>
<td>0.0001</td>
<td>0.002</td>
<td>8.929 (2.277-34,942)</td>
</tr>
</tbody>
</table>

Conclusion
Our preliminary study supports the hypothesis systemic inflammatory response exerts a major role in short-term status epilepticus prognosis. Infective complications per se do not seem to alter significantly the outcome.

Bibliografia