Abstract: P5744

Sleep-disordered breathing assessed by holter-monitoring is associated to worsened one-year clinical outcomes in ischemic stroke patients: a cardiopulmonary coupling analysis

Authors:
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Topic(s):
Stroke – Epidemiology, Prognosis, Outcome

Citation:
Background: Sleep-disorder breathing (SDB) using polysomnography is closely associated to poor functional and clinical outcomes in ischemic stroke patients. The cardiopulmonary coupling analysis using Holter-monitoring (CPC-Holter analysis) is an emerging feasible modality to investigate SDB.

Purpose: We investigated the association between SDB defined by CPC-Holter analysis and one-year clinical outcome in patients with acute ischemic stroke.

Methods: Total 666 patients with acute ischemic stroke who underwent Holter-monitoring were enrolled. The CPC-Holter analysis was conducted and SDB was defined as the presence of narrow-band (NB) coupling during sleep time. Primary outcome was recurrent ischemic stroke, and secondary outcome was major adverse cerebrovascular event (MACE), a composite of recurrent ischemic stroke, transient ischemic attack, and all-cause mortality within one year since discharge.

Result: The NB coupling was present in 205 (30.8%) of 666 patients with mean age of 64.1 ± 12.8 years. The NB group showed significantly higher incidence of both recurrent ischemic stroke (8.3% vs. 1.4%, p<0.001) and MACE (14.9% vs. 3.0%, p<0.001) within one-year. In multivariate analysis, presence of NB coupling remained as an independent predictor of both recurrent ischemic stroke and MACE (HR: 4.81; 95% CI: 1.73-13.4; p=0.003; and HR 4.17; 95% CI: 1.74-10.0; p<0.001, respectively). The results were consistent after propensity-score matched analysis with 164 patient pairs (C-statistics=0.757).

Conclusion: SDB assessed by CPC-Holter analysis at early phase of ischemic stroke is a powerful prognostic marker for predicting one-year adverse clinical outcomes. The CPC analysis using Holter-monitoring is a useful modality and could be easily applied to predict clinical outcomes in acute ischemic stroke patients.

<table>
<thead>
<tr>
<th></th>
<th>Overall population (n=666)</th>
<th></th>
<th></th>
<th></th>
<th>PSM population (n=328)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no NB (n=461)</td>
<td>NB (n=205)</td>
<td>Log-rank</td>
<td>OR (95% CI)</td>
<td>no NB (n=164)</td>
<td>NB (n=164)</td>
<td>Log-rank</td>
<td>OR (95% CI)</td>
</tr>
<tr>
<td>Recurrent ischemic stroke</td>
<td>6 (1.4)</td>
<td>14 (8.3)</td>
<td>&lt;0.001</td>
<td>5.73 (2.20-14.9)</td>
<td>3 (2.0)</td>
<td>11 (8.1)</td>
<td>0.026</td>
<td>3.85 (1.07-13.8)</td>
</tr>
<tr>
<td>Transient ischemic attack</td>
<td>3 (0.7)</td>
<td>3 (1.7)</td>
<td>0.275</td>
<td></td>
<td>2 (1.3)</td>
<td>3 (2.1)</td>
<td>0.633</td>
<td></td>
</tr>
<tr>
<td>Hemorrhagic stroke</td>
<td>0 (0.0)</td>
<td>2 (1.2)</td>
<td>0.027</td>
<td></td>
<td>0 (0.0)</td>
<td>2 (1.5)</td>
<td>0.148</td>
<td></td>
</tr>
<tr>
<td>Total death</td>
<td>3 (0.7)</td>
<td>9 (4.8)</td>
<td>0.001</td>
<td></td>
<td>2 (1.3)</td>
<td>3 (1.9)</td>
<td>0.641</td>
<td></td>
</tr>
</tbody>
</table>

Data are expressed as n (%). CI = confidence interval; MACE = major adverse cardiovascular event; NB = narrow-band; OR = odds ratio
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<table>
<thead>
<tr>
<th>MACEs</th>
<th>12 (3.0)</th>
<th>25 (14.9)</th>
<th>&lt;0.001</th>
<th>4.63 (2.06-10.4)</th>
<th>7 (5.2)</th>
<th>17 (13.1)</th>
<th>0.030</th>
<th>2.95 (1.06-8.21)</th>
</tr>
</thead>
</table>

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