Is sleep disordered breathing a risk factor for REM sleep behavior disorder in military Veterans with Parkinson’s disease?

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Objective: To study the association of sleep disordered breathing with REM sleep behavior disorder in U.S. military Veterans with Parkinson’s disease.

Background: Both REM sleep behavior disorder (RBD) and sleep disordered breathing (SDB) are common in patients with Parkinson’s disease (PD). Prior smaller studies involving non-Veterans from other countries have found SDB to be more frequent and severe in PD patients with RBD. No such observation in U.S. military Veterans has been reported.

Methods: A total of 126 Veterans with PD followed in our movement disorders clinic were evaluated for the presence of RBD using the English language version of the REM Sleep Behavior Questionnaire-Hong Kong (RBDQ-HK) [cut off score 20]. Groups with and without RBD were assessed for risk for SDB using modified Berlin Questionnaire. All subjects were screened for excessive daytime sleepiness using Epworth Sleepiness Scale (ESS) [cut off score 10]. PD disease severity and cognition were assessed using Hoehn and Yahr rating scale (H&Y) and Unified Parkinson’s Disease Rating Scale (UPDRS), respectively.

Results: The groups with and without RBD included 64 and 62 subjects respectively. SDB risk as estimated by three category 1 questions of modified Berlin questionnaire (Snoring, Gasping, Observed Apnea) was significantly increased in the group with RBD as compared to the one without. However, when the groups were sub-divided into “Sleepy” (ESS ≥ 10) and “Non-Sleepy” (ESS < 10), the significant difference was only noted in the “Sleepy” group. The groups were comparable with respect to age, gender distribution, disease severity (H&Y, median = 2.0 for both), and cognition (UPDRS question 1, median = 1 for both).

Conclusions: The risk for sleep disordered breathing is higher in US military Veterans with Parkinson’s disease who also endorse symptoms suggestive of REM sleep behavior disorder. Day time sleepiness may be a biomarker for this association in this group of patients. Additional work is needed to confirm these findings.

REM Behavior Disorder Scores for Each Sleep Disordered Breathing Question

<table>
<thead>
<tr>
<th>Subset of 3 questions from an 8-item sleep symptom checklist:</th>
<th>Category **</th>
<th>No Median</th>
<th>Yes Median</th>
<th>p-value Mann-Whitney</th>
</tr>
</thead>
<tbody>
<tr>
<td>I snore loudly</td>
<td>1</td>
<td>11</td>
<td>24.5</td>
<td>0.050*</td>
</tr>
<tr>
<td>I awaken gasping or choking for breath</td>
<td>1</td>
<td>15</td>
<td>28</td>
<td>0.044*</td>
</tr>
<tr>
<td>I’ve been told that I stop breathing in my sleep</td>
<td>1</td>
<td>14.5</td>
<td>31.5</td>
<td>0.026*</td>
</tr>
</tbody>
</table>

**per Berlin questionnaire

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