### Introduction

Allergic rhinitis is well known disease for increasing patient’s day time somnolence, fatigue and decreasing cognitive performance and so does Obstructive sleep apnea. But there are no studies showing the result if both of diseases coexist. In our study, we tried to measure and compare the amount of stress and fatigue between patients who have only obstructive sleep apnea and patients who have both obstructive sleep apnea allergic rhinitis.

### Subjects and Method

#### Subjects

54 patients who were diagnosed of obstructive sleep apnea with polysomnography in department of ORL-HNS in Kyung Hee medical center were enrolled to our study. Among them 19 patients were classified to obstructive sleep apnea with allergic rhinitis(OSA-AR) group according to allergic skin test and symptoms, and 35 patients were classified to obstructive sleep apnea without AR(OSA) group. (Table 1.) Patients who have concurrent medical diseases were excluded.

#### Methods

We evaluated BMI (Body Mass Index), AHI (Apnea Hypopnea Index), RERA (Respiratory effort related arousals), LSAT (Lowest O2 Saturation), RQLQ (Rhinoconjunctivitis Quality of Life Questionnaire), ESS (Epworth sleepiness scale), Stress Score, fatigue Score, ability to cope stress with questionnaires of both group and statistically compared mean scores of both groups. Mann-Whitney U-test and Wilcoxon’s signed-rank test were used to analyze gathered data by SPSS for Windows version 12.0.

### Results

Table 1. Demographic data of the patients

<table>
<thead>
<tr>
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<th>OSA-AR</th>
<th>OSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age distribution</td>
<td>21-55</td>
<td>20-68</td>
</tr>
<tr>
<td>Male: Female</td>
<td>16:3</td>
<td>28:7</td>
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<tr>
<td>Mean age</td>
<td>46.5±13.27</td>
<td>46.9±13.25</td>
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</tbody>
</table>

1. There were no significant difference in mean BMI, AHI, RERA and LSAT between two groups(Fig. 1).
2. OSA-AR group showed significantly higher mean stress score by 62.16 and 52.2(Fig. 2).
3. Mean RQLQ scores of OSA-AR group was 56.6 and OSA group was 24.9 and mean fatigue score were 37.6 and 30.7 and mean ESS score were 13.42 and 9.4. All of scores were significantly higher in OSA-AR group(Fig. 3).

### Conclusion

OSA-AR group had significantly higher stress and fatigue and ESS score though there were no significant differences in AHI, RERA, BMI, LSAT between two groups. Allergic rhinitis could contribute to this difference. In conclusion, managing allergic rhinitis will be important in treating patients who have both OSA and allergic rhinitis.