Complications with Allergic Rhinitis and the Early Appearance of Sleep Apnea Syndrome

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ABSTRACT

OBJECTIVE:
The object of this study was to evaluate the effects of allergic rhinitis on sleep apnea syndrome.

METHODS:
Data from 75 outpatients who had sleep trouble and consulted the sleep apnea clinic in the otolaryngology department of our hospital between Nov. 2011 and Oct. 2012 was utilized. They were arranged into 4 specific groups (with seasonal allergic rhinitis, with perennial allergic rhinitis, with both types of rhinitis, and without allergic rhinitis). This study was analyzed using the Mann-Whitney U-test.

RESULT:
In our sleep apnea clinic, 35% were without allergic rhinitis and 65% people were with complicated allergic rhinitis (49/75), including 51% (25/49) with both perennial and seasonal of allergic rhinitis, 37% (18/49) with only seasonal rhinitis and 12% (6/49) with only perennial allergic rhinitis. Total serum IgE measured by the RIST (radioimmunosorbent test) of people with both types of rhinitis were higher than the other groups (p<0.05). Moreover, the age of the patients with both types of rhinitis was lower than the age of those without it (p<0.05). Although the AHI (apnea hypopnea index) of patients without rhinitis was higher than the AHI of those with seasonal rhinitis (p<0.05), the AHI of non-rhinitis patients was not much different from the patients with both types of rhinitis. The inflammation (reflected by high RIST values) caused by allergic rhinitis may lead those with perennial and seasonal allergic rhinitis to develop sleep apnea at a younger age than those without allergic rhinitis. Sleep apnea can take a turn for the worse when complicated with severe allergic rhinitis. It is thought that nasal mucosal hypertrophy due to the inflammation of severe allergic rhinitis causes nasal obstruction, thereby worsening the symptoms of sleep apnea.

METHODS AND MATERIALS

Data from 75 outpatients who had sleep trouble and consulted the sleep apnea clinic in the otolaryngology department of our hospital between Nov. 2011 and Oct. 2012 was utilized. We conducted RIST (radioimmunosorbent test) and RAST (radioallergosorbent test) on the total serum samples of the patients for perennial allergic rhinitis (house dust, mite) and seasonal allergic rhinitis (cedar pollen, cypress pollen, orchard grass, timothy grass, ragweed). They were arranged into 4 specific groups (with seasonal allergic rhinitis, with perennial allergic rhinitis, with both types of rhinitis, and without allergic rhinitis). AHI (apnea hypopnea index) was tested with type II or III monitoring. This study was analyzed using the Mann-Whitney U-test.

RESULTS

The monthly number of outpatients consulting our sleep apnea clinic was different due to any seasonal allergens.

CONCLUSION:
The inflammation (reflected by high RIST values) caused by allergic rhinitis may lead those with perennial and seasonal allergic rhinitis to develop sleep apnea at a younger age than those without allergic rhinitis. Sleep apnea can take a turn for the worse when complicated with severe allergic rhinitis. It is thought that nasal mucosal hypertrophy due to the inflammation of severe allergic rhinitis causes nasal obstruction, thereby worsening the symptoms of sleep apnea.

REFERENCES

1. Obstructive apneas during sleep in patients with seasonal allergic rhinitis. (McNicholas WT et al.1982)
2. Effects of surgical correction of nasal obstruction in the treatment of obstructive sleep apnea (Series et al. 1992)
3. Immune mediators in allergic rhinitis and sleep. (Krouse et al. 2002)