

European Respiratory Society Annual Congress 2012

Abstract Number: 4117

Publication Number: P437

Abstract Group: 4.2. Sleep and Control of Breathing

Keyword 1: Sleep studies **Keyword 2:** Cough **Keyword 3:** Epidemiology

Title: Nocturnal gastro-esophageal reflux and respiratory symptoms in patients with obstructive sleep apnea, before and after CPAP treatment, compared to the general population – The Icelandic Sleep Apnea Cohort (ISAC) study

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Body: Introduction: To estimate the prevalence of reported nocturnal gastro-esophageal reflux (nGER) and respiratory symptoms in obstructive sleep apnea (OSA) subjects compared to the general population. Also change in nGER with CPAP treatment. Methods: 826 OSA patients referred for CPAP treatment. 623 subjects have had a 2 year follow-up visit (n=412 CPAP users, n=211 nonusers). The control group consisted of 939 subjects randomly selected from the general population (81% response rate). Both groups answered the same questionnaires on nGER, sleep, respiratory symptoms, general health and quality of life measured by SF-12. Results: Altogether 18.6% of OSA females and 13.6% of males (p=0.07) compared to 7.5% of controls (p<0.001) reported nGER (≥ 1x a week). Wheeze was more common among OSA subjects with nGER compared to those without nGER (42.5% vs. 29.3%, p=0.005). Bringing up phlegm in the morning was also associated with reporting nGER (35.7% vs. 24.8%, p=0.02). Among OSA patients nGER was not related to smoking, obesity, hypertension, diabetes or OSA severity. SF-12 showed that among those with nGER both physical component scores (40.7+/-10.9 vs. 37.4+/-10.3, p=0.003) and mental scores (49.0 +/-10.8 vs. 44.1 +/-11.1, p<0.0001) were significantly lower. At two year follow-up nGER was only reported by 6.2% of the those followed and was lowest (3.8%) among full CPAP users (p<0.0001). Conclusion: nGER is a common clinical symptom of OSA and often related to respiratory symptoms. Prevalence of nGER decreases with CPAP treatment in a majority of OSA patients.