

European Respiratory Society Annual Congress 2012

Abstract Number: 603

Publication Number: 187

Abstract Group: 4.2. Sleep and Control of Breathing

Keyword 1: Sleep disorders **Keyword 2:** Apnoea / Hypopnea **Keyword 3:** Epidemiology

Title: Independent impact of obstructive sleep apnea severity on glycated haemoglobin in adults without diabetes

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Body: Hypothesis: there may be an independent association between obstructive sleep apnea (OSA) severity and glycated hemoglobin (HbA1c) in adults without known diabetes. Methods: HbA1c was measured in 1,728 patients with no history of diabetes undergoing nocturnal recording for suspected OSA. Results: A dose-response relationship was observed between apnea-hypopnea index (AHI) and percentage of patients with HbA1c>6.0% that increased from 13.8% for AHI<5 to 42.6% for AHI≥50. After adjustment for age, gender, smoking habits, body mass index (BMI), waist circumference (WC), cardiovascular morbidity, daytime sleepiness, depression, insomnia and sleep duration, odds ratios (95% confidence intervals) for HbA1c>6.0% were 1 (reference), 1.43 (0.88 to 2.33), 1.74 (1.08 to 2.81), 1.94 (1.22 to 3.09) and 2.89 (1.79 to 4.67) for AHI values ≤5, 5 to <15, 15 to <30, 30 to <50, and ≥50 respectively. Increasing hypoxemia during sleep was also independently associated with the odds of HbA1c >6.0%. Conclusions: Among adults without known diabetes, increasing OSA severity is independently associated with impaired glucose metabolism that may expose to higher risks of diabetes and cardiovascular disease.

Odds ratio (95% confidence intervals) for HbA1c >6% according to AHI (AHI<5=reference) after adjustment for age, gender, smoking habits, BMI, WC, cardiovascular morbidity, daytime sleepiness, depression, insomnia and total sleep time.