

Prevalence and Risk Factors of Syndrome Z in Urban Indians

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Abstract

Background: Syndrome Z is defined as the co-occurrence of obstructive sleep apnea (OSA) and metabolic syndrome. There is a paucity of information on the magnitude of syndrome Z in the community and the factors associated with it.

Methods: We conducted a two-stage, cross-sectional, community-based study in four different socioeconomic zones of the South Delhi district, India, from April 2005 through June 2007. In stage 1, a systematic random sample of subjects of either gender aged 30–65 years were administered a questionnaire by door-to-door survey. Subjects that responded were classified as habitual and non-habitual snorers. In stage 2, all the habitual and 10% of randomly selected non-habitual snorers were invited for overnight polysomnography and evaluation for metabolic syndrome. The National Cholesterol Education Program-Adult Treatment Panel III (NCEP-ATPIII) criteria were used to define metabolic syndrome.

Results: Of the 2860 subjects approached, 2505 (88%) completed stage 1; 452 (18%) were habitual snorers. In stage 2, OSA (defined as apnea-hypopnea index ≥ 5) was observed in 94 (32.4%) of 290 habitual snorers and 3 (4%) of 75 non-habitual snorers. Seventy (77%) of the 91 habitual snorers with OSA also had metabolic syndrome; none of the non-habitual snorers with OSA had metabolic syndrome. The estimated population prevalence of metabolic syndrome was 43% [95% CI: (41.0–44.9%)] and syndrome Z was 4.5% (95% CI: 3.7–5.3). On multivariable analysis, age [OR: 1.05 (1.00–1.09)], male gender [OR: 5.64 (2.06–15.49)], percent body fat [OR: 1.08 (1.04–1.13)] and DeltaSaO₂ (%) (defined as the difference between baseline and minimum SaO₂ during overnight sleep study) [OR: 5.80 (2.36–14.26), 17.70 (5.97–52.17) and 57.1 (19.12–170.40) for 10–20%, 20–30% and $>30\%$ reduction respectively as compared to $<10\%$ reduction] were independently associated with syndrome Z.

Conclusions: To the best of our knowledge, this is the first population-based study on the prevalence and risk factors of syndrome Z, and it reveals that a considerable proportion of community-dwelling northern Indian adults have syndrome Z. Age, male gender, percent body fat and severity of nocturnal desaturation were independent risk factors for syndrome Z.