

RELATIONSHIP BETWEEN NOCTURIA AND METABOLIC SYNDROME

Hypothesis / aims of study

Previous epidemiological studies have suggested a relationship between vascular risk factors and lower urinary tract symptoms [1]. However, there have been no reports on the relationship between metabolic syndrome and nocturia. We thus aimed to evaluate the relationship between components of metabolic syndrome and nocturia in Japanese.

Study design, materials and methods

We collected data on 28,238 individuals (9,286 males and 18,952 females) who participated in a multiphasic health screening in Fukui, Japan. Self-reported current body weight and height were used to calculate body mass index [BMI] (body weight in kilograms divided by the square of height in meters). As part of a multiphasic health screening, blood pressure, fasting blood sugar, triglycerides and HDL-cholesterol were measured. Participants were asked to report any current or previous disease.

We analyzed the relationships between nocturia (defined as two or more voids/night) and other variables including age, gender, BMI, high blood pressure, impaired glucose tolerance, and hyperlipidemia. We defined the following four components of metabolic syndrome: (a) high BMI (≥ 25.0 kg/m²); (b) high blood pressure (systolic blood pressure ≥ 130 mmHg or diastolic blood pressure ≥ 85 mmHg); (c) impaired glucose tolerance (fasting glucose concentration ≥ 110 mg/dL); and (d) dyslipidemia (triglyceride concentration ≥ 150 mg/dL and/or HDL-cholesterol level < 40 mg/dL).

Results

The mean age and BMI were 61.5 (17-97) y and 22.6 (13.5-53.1) kg/m², respectively. The overall prevalence of nocturia was 5.8%, and prevalence was higher in older age groups. In the multivariate analysis, a significant association was found between nocturia and the following: age, male gender (Odds Ratio [OR] 1.898; reference group, female), BMI < 18.5 (OR 1.360; reference group, men with BMI 18.5-24.9), BMI 25.0-26.9 (1.181), BMI ≥ 27.0 (1.378), high blood pressure (1.213), and impaired glucose tolerance (1.292). We also analyzed the relationships between nocturia and the number of components of metabolic syndrome. Individuals with components of metabolic syndrome had an increased odds ratio of nocturia. The odds ratios for 1, 2, 3 and 4 components were, 1.162, 1.379, 1.566 and 2.255, respectively (reference group, individuals without components). All results were adjusted for age and gender.

Interpretation of results

Our study confirmed that the independent risk factors for nocturia were high age, male gender, low and high BMI, high blood pressure, and impaired glucose tolerance. The number of components of metabolic syndrome was correlated with nocturia.

Concluding message

To best of our knowledge, this is the first study to show that the risk for nocturia increases with a higher number of metabolic syndrome components. Clinicians may need to consider metabolic syndrome in the differential diagnosis for nocturia.

References

1. Eur Urol 50:581, 2006

Specify source of funding or grant	None
Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	The Ethical Committee of The University of Fukui
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes