

Klinik Çalışmalar/Clinical Reports

Prevalence of the Metabolic Syndrome in an Internal Medicine Outpatient Clinic

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ÖZET

Dahiliye Polikliniğine Başvuran Hastalarda Metabolik Sendrom Sıklığı

Metabolik sendrom majör global sağlık sorunlarından biridir ve sıklığı tüm dünya çapında artmaktadır. Metabolik sendromlu kişiler artmış kardiyovasküler hastalık riskine sahiptir. Bu çalışmada hastanemiz dahiliye polikliniğine başvuran hastalarda metabolik sendrom sıklığını saptamayı amaçladık. Ulusal Kolesterol Eğitim Programı-Yetişkin Tedavi Paneli (NCEP-ATP-III) kullanarak yaşları 18-80 arasında değişen toplam 1512 (317'si erkek, 1195'i kadın) hasta metabolik sendrom varlığı açısından sınıflandırılmıştır. Metabolik sendrom sıklığı erkeklerde %27.4, kadınlarda %43.3 olarak saptanmıştır. Ayaktan hasta polikliniğine başvuran hastalarda metabolik sendrom sıklığı fazla olduğu için metabolik sendrom bileşenlerinden bir ya da daha fazlasına sahip olan hastalarda diğer bileşenlerin varlığı da araştırılmalıdır.

Anahtar Kelimeler: Metabolik sendrom, dahiliye kliniği, Ulusal Kolesterol Eğitimi Programı-Yetişkin Tedavi Paneli

SUMMARY

Prevalence of the Metabolic Syndrome in an Internal Medicine Outpatient Clinic

Metabolic syndrome is a major global health problem and its prevalence has been increasing all around the world. People with the meta-bolic syndrome are at increased risk of developing cardiovascular dis-ease. In this study we aimed to determine the prevalence of metabolic syndrome among patients attending to our outpatient clinic. National Cholesterol Education Program-Adult Treatment Panel (NCEP-ATP III) was used to categorize a total of 1512 patients (317 men, 1195 women) aged 18-80 years by presence of metabolic syndrome. The prevalence of metabolic syndrome was 27.4% and 43.3% in men and women, respectively. As the prevalence of metabolic syndrome is high among outpatient clinics, it is important to screen patients who have one or more components of metabolic syndrome, for the others.

Key Words: Metabolic syndrome, outpatient clinic, National Cholesterol Education Program-Adult Treatment Panel

INTRODUCTION

The metabolic syndrome is a cluster of metabolic abnormalities: Abdominal obesity, insulin resistance (elevated fasting glucose), hypertension, and dyslipidemia (elevated triglyceride and decreased HDL cholesterol levels). All of them are associated with increased cardiovascular disease risk, and also increased mortality from cardiovascular disease and all causes (1,2). Insulin resistance has been suggested as an underlying feature of metabolic syndrome (3). In 2001, National Cholesterol Education Program (NCEP) Adult Treatment Panel (ATP) III provided a definition for metabolic syndrome which is practical for physicians to use (4).

MATERIALS and METHODS

From September 2003 to January 2004, a total of 1512 patients (317 men, 1195 women) aged 18-80 years were evaluated in our internal medicine outpatient clinic for the presence of metabolic syndrome according to the NCEP ATP III. The NCEP ATP III panel defined metabolic syndrome as the presence of three or more of the following abnormalities: waist circumference greater than 102 cm in men and 88 cm in women; serum triglycerides level at least 150 mg/dL (1.69 mmol/L); HDL cholesterol level of less than 40 mg/dL (1.04 mmol/L) in men and 50 mg/dL (1.29 mmol/L) in women; blood pressure of at least 130/85 mmHg; serum glucose level of at least 110 mg/dL (6.1 mmol/L) (4). Participants provided informed consent. All patients were examined by a physician. Blood pressure was measured by using a calibrated sphygmomanometer after the patient had been seated for 15 minutes. The mean value of three measurements taken 5 minutes apart was noted. Patients reporting a history of hypertension and antihypertensive therapy were defined as having hypertension regardless of measured blood pressure values. The waist circumference was measured with a flexible tape placed on a horizontal plane at the level of the natural waist line or the narrowest part of the torso as seen from the anterior view. Samples of blood glucose, HDL cholesterol and triglycerides were drawn after an overnight fasting. Levels of plasma glucose, HDL cholesterol and triglycerides were determined by calorimetric method using a Cobas Mira Plus auto-analyzer (Roche Diagnostics, Mannheim, Germany). Individuals reporting a history of diabetes mellitus or anti-diabetic medication use and lipid lowering medication use were defined as having di-

abetes and dyslipidemia regardless of fasting glucose, HDL cholesterol and triglycerides. Statistical testing involved the Student's t-test and all results were expressed as mean $\pm$ SEM, p values less than 0.05 were considered statistically significant.

RESULTS

A total of 1512 patients (317 men, 1195 women) were involved to our study. The mean age was 51.2 ± 16.6 years and 45.6 ± 15.3 years in men and women, respectively ($p < 0.001$). In our study the mean triglyceride levels (111.9 ± 89.5 vs. 122.1 ± 85.5 mg/dL), waist circumference (92.8 ± 14.3 vs. 93.0 ± 12.4 cm), systolic (135.7 ± 27.5 vs. 135.2 ± 26.4 mmHg) and diastolic blood pressure (83.7 ± 14.3 vs. 82.8 ± 13.2 mmHg) values were not different in women and men significantly. The mean fasting glucose (106.3 ± 41.4 mg/dL vs. 112.2 ± 45.9 mg/dL; $p < 0.05$) and HDL cholesterol (47.1 ± 9.1 vs. 43.7 ± 9.1 mg/dL; $p < 0.001$) levels were significantly different in women and men. In our study the prevalence of metabolic syndrome was 43.1%. The metabolic syndrome prevalence was 47.3% and 27.4% in women and men, respectively. Women had a higher prevalence of metabolic syndrome than men ($p < 0.05$). The presence of zero, one, two, three, four, five features of the metabolic syndromes was 7.3%, 21.9%, 23.3%, 26.8%, 15.3%, 5.1% and 19.8%, 29.3%, 23.3%, 17.0%, 9.1%, 1.2% in women and men, respectively.

CONCLUSIONS

The increasing prevalence of metabolic syndrome is a major health problem in industrialized societies. Individuals with this syndrome are at high risk for morbidity and mortality from cardiovascular diseases (1). In our study, we aimed to determine the prevalence of metabolic syndrome among the patients attending to the internal medicine outpatient clinic of Ankara Training and Education Hospital; a reference hospital in Ankara which is one of the most industrialized region of our country. By NCEP ATP III definition the prevalence of metabolic syndrome was 43.1%. Women had a higher prevalence of metabolic syndrome than men (47.3%, 27.4%; respectively, $p < 0.05$). The prevalence of metabolic syndrome was 21.8% in US adults by using NCEP ATP III definition. In Americans the prevalence increased from 6.7% among 20-29 years old participants to 43.5% and 42.0% for participants aged 60-69 and aged at least 70 years, respectively. The prevalence was similar for men (24.0%) and for women (23.4%) (5). Pre-

vious prevalence studies in the United States and Europa have different results, because of the differences in definitions and populations (6-8). In our study the metabolic syndrome prevalence was higher than the prevalence in US and this confirms previous Heart Disease and Risk Factors In Turkish Adults Study. The metabolic syndrome is becoming even more common in our country (9-11). People with metabolic syndrome are at high risk for coronary heart disease. In two Finish studies, the presence of metabolic syndrome predicted increased cardiovascular disease mortality (1,12). In order to prevent morbidity and mortality from cardiovascular disease, aggressive lifestyle modification such as appropriate diet, enhanced physical activity, weight loss; and when necessary drug therapy is recommended. This approach may provide decrease in metabolic syndrome prevalence and mortality and morbidity from cardiovascular disease (5). In our study 23.3% of men and women have two components of metabolic syndrome, lifestyle modifications should be instituted to these patients immediately in order to prevent metabolic syndrome. As the prevalence of metabolic syndrome is high in our country; it is important to screen patients attending to outpatient clinics for the components of metabolic syndrome in order to prevent the metabolic syndrome and cardiovascular morbidity and mortality.

REFERENCES

1. Isooma B, Almgren P, Tuomi T, et al. Cardiovascular morbidity and mortality associated with the metabolic syndrome. *Diabetes Care* 2001; 24: 683-9.
2. Trevisan M, Liu J, Bahsas FB, Menotti A. Syndrome X and mortality: A population-based study. *Am J Epidemiol* 1998; 148: 958-66.
3. Grundy SM. Hypertriglyceridemia, insulin resistance, and the metabolic syndrome. *Am J Cardiol* 1999; 83: 25-9.
4. Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults: Executive Summary of the Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). *JAMA* 2001; 285: 2486-97.
5. Ford S, Giles H, Dietz H. Prevalence of the Metabolic Syndrome Among US Adults, Findings From the Third National Health and Nutrition Examination Survey. *JAMA* 2002; 287: 356-9.
6. Schmidt MI, Duncan BB, Watson RL, Sharrett AR, Brancati FL, Heiss G. A metabolic syndrome in whites and African-Americans: The Atherosclerosis Risk in Communities baseline study. *Diabetes Care* 1996; 19: 414-8.
7. Meigs JB, D'Agostino RB Sr, Wilson PW, Cupples LA, Nathan DM, Singer DE. Risk variable clustering in the insulin resistance syndrome: The Framingham Offspring Study. *Diabetes* 1997; 46: 1594-600.
8. Hurthe J, Bokemark L, Wikstrand J, Fagerberg B. The metabolic syndrome, LDL particle size, and atherosclerosis: The Atherosclerosis and Insulin Resistance (AIR) Study. *Arterioscler Thromb Vasc Biol* 2000; 20: 2140-7.
9. Onat A, Ceyhan K, Basar O, et al. Metabolic syndrome: Major impact on coronary risk in a population with low cholesterol levels-a prospective and cross-sectional evaluation. *Atherosclerosis* 2002; 165: 285-92.
10. Onat A. Risk factors and cardiovascular disease in Turkey. *Atherosclerosis* 2001; 156: 1-10.
11. Mahley RW, Palaoglu KE, et al. Turkish Heart Study: Lipids, lipoproteins, and apolipoproteins. *J Lipid Res* 1995; 36: 839.
12. Lakka HM, Laaksonen DE, Lakka TA, et al. The metabolic syndrome and total and cardiocascular disease mortality in middle-aged men. *JAMA* 2002; 288: 2709-16.

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