Prevalence of Metabolic Syndrome in Hospitalized Patients in Two Cardiology Wards

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Abstract

Introduction: To the best of our knowledge, there is little data about metabolic syndrome (METS) in hospitalized patients, and we think that the prevalence of syndrome in these patients is higher than normal population, hence we decided to clarify prevalence of this syndrome in this group of patients and compared three criteria of METS definition with each other.

Methods: This study was conducted between January 2009 and December 2010. 194 consecutive patients were enrolled in the study. The diagnoses of the patients were recorded based on their medical charts. The height, weight, body mass index (BMI), waist circumference, blood pressure (BP), High-density lipoprotein (HDL) cholesterol, triglycerides and fasting blood glucose of the subjects were measured. The presence of MetS was determined based on the definitions given by the ATP III-A for Asians, the recent IDF and AHA/NHLBI criteria. Descriptive statistics were computed to describe the demographic and clinical variables.

Results: There were 109 males and 85 females. The MetS was present in 93 of 194 (48.0%) subjects, according to the NCEP-ATP III, IDF, AHA/NHLBI definition criteria [6-9]. Approximately 40–50% of individuals aged over 60 years in industrialized countries and 25% in a previous study in normal population in this geographic area meet the current criteria for the Mets. To the best of our knowledge, there is little data of hospitalized patients, and we think that the prevalence of syndrome in these patients is high; hence we decided to clarify prevalence of this syndrome in these patients and compared three criterias of METS definition with each other.

Conclusion: Gender (female) and DM were factors significantly associated with the diagnosis of metabolic syndrome. Taking the general population as a reference in this geographic area (25% vs. 48% p=0.01), this value is also elevated. We also recommend using AHA/NHLBI criteria for hospitalized patients.

Introduction

Cardiovascular disease is now a leading cause of death and subjects with the metabolic syndrome are at increased risk for diabetes [1-3] and cardiovascular disease (CVD) [4,5]. These two, are big problems for many population. In our country, population have more sedentary lifestyle now, we decided to conduct this study to know more about this syndrome in hospitalized patients who are high risk for mortality from cardiovascular disease. Due to the lack of availability of assays for insulin and microalbuminuria in the third world, we used only the NCEP ATP III, IDF, AHA/NHLBI definition criteria [6-9]. Approximately 40–50% of individuals aged over 60 years in industrialized countries and 25% in a previous study in normal population in this geographic area meet the current criteria for the Mets. To the best of our knowledge, there is little data of hospitalized patients, and we think that the prevalence of syndrome in these patients is high; hence we decided to clarify prevalence of this syndrome in these patients and compared three criterias of METS definition with each other.

Methods

Participants

This study was conducted between January 2009 and December 2010. Subjects were 194 patients (sample volume was calculated according to N=2*(z1-a/2)*p*(1-p)/d^2) (109 males and 85 females) from 2 cardiology wards in two academic hospitals in Iran who were admitted with coronary artery disease in 50%, heart failure in 30%, Chronic Obstructive Pulmonary Disease (COPD) in 10% and valvular heart disease in 5%, conduction abnormalities in 2%, arrythmia in 3%. The diagnoses of the patients were recorded based on their medical charts. All subjects fasted from midnight prior to the assessment day. The data collection for this study was approved by the Ethics Committee of the Yasuj University School of Medicine.

Measurements

The subjects’ demographic data (age and sex) were obtained from their medical records. The height and weight of the subjects were measured, and body mass index (BMI) was calculated. Waist circumference to the nearest of 0.1 cm was measured at the umbilical level with the subject in a standing position by a technician in the morning. Trained technicians measured blood pressure (BP) using standard mercury sphygmomanometers on the right arm of seated participants after a 5 min rest period. High density lipoprotein (HDL) cholesterol, triglycerides and fasting blood glucose were also measured using standard analytical techniques. The presence of MetS was determined based on the definitions given by the ATP III-A for Asians and the recent IDF and AHA/NHLBI criteria. Descriptive statistics were computed to describe the demographic and clinical variables. The data was analyzed using SPSS software for Windows (Version 15.0).

Results

Demographic and clinical characteristics

Demographic and clinical characteristics of the study population are shown in Table 1. The average patient’s weight was 72 kg, height 169 cm, BMI 28 kg/m^2.

MetS and criteria prevalence among subjects

The data shows significant patterns of MetS criteria prevalence by...
The presence of MetS in hospitalized cardiac patients should trigger aggressive efforts toward patient education and lifestyle modifications, with special attention given to diabetics and women. We also recommend using AHA/NHLBI criteria for these patients.

**References**


**Table 1:** Demographic and clinical characteristics and prevalence of MetS of the subjects.

<table>
<thead>
<tr>
<th>Age</th>
<th>prevalence</th>
<th>mean</th>
<th>Prevalence of MetS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;40</td>
<td>11/5.7%</td>
<td>354±5.6</td>
<td>5/45.5%</td>
</tr>
<tr>
<td>41-60</td>
<td>100/51.5%</td>
<td>53±8.2</td>
<td>74/48.5%</td>
</tr>
<tr>
<td>&gt;60</td>
<td>83/42.8%</td>
<td>85±4.8</td>
<td>4/50.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Waist circumference (cm)</th>
<th>&gt;88/female/ &gt;102/male</th>
<th>total/984/43%</th>
</tr>
</thead>
<tbody>
<tr>
<td>62/female/80/22/male/20%</td>
<td>95±6.8</td>
<td>103±5.6</td>
</tr>
</tbody>
</table>

| Systolic BP (mmHg)>140 | 31/16% | 152±10 |
| Diastolic BP (mmHg)>85 | 37/19% | 93±6 |
| HDL-C (mg/dl)>40 | 81/41.8% | 30±6 |
| Triglyceride (mg/dl)>150 | 108/55.7% | 185±33 |
| Fasting glucose >100(mg/dl) | 141/72.7% | 138±26 |
| M/F | 1.3/1 | 0.4/3.7male/53/64female |
| Sedentary life style | 133/68.6% | 65/70% |

**Conclusion**

The presence of MetS in hospitalized cardiac patients should trigger aggressive efforts toward patient education and lifestyle modifications, with special attention given to diabetics and women. We also recommend using AHA/NHLBI criteria for these patients.

**References**


