Gender related differences in clinical presentation of ischemic heart disease patients with concomitant chronic obstructive pulmonary disease

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ABSTRACT

Background: Ischemic heart disease (IHD) is the leading cause of morbidity and mortality in non-communicable group of diseases. By year 2030, Chronic Obstructive Pulmonary Disease (COPD) will be the third leading cause of death globally. IHD and COPD coexist in 18-50% of patients in different studies.

Objective: Objective of the present study was to determine gender related differences in clinical presentation of ischemic heart disease patients with concomitant chronic obstructive pulmonary disease (COPD).

Methods: This was a descriptive cross-sectional study in Ischemic heart disease patients presenting to Cardiology and Pulmonology consultant clinic. Written informed consent were taken from all study participants. All ischemic heart disease patients were evaluated for presence of COPD on the basis of any spirometric findings. Data were recorded in structured proforma regarding clinical presentation to determine any gender-related differences.

Results: Total of 133 patients with ischemic heart disease were evaluated for presence of COPD. Mean age of study participants were 58 ± 11.9 yrs. Seventy eight (59%) and 55 (41%) were males and females respectively. 59 (44%) were smokers and similar number were found to be having COPD. Males with concomitant COPD were 40 (68%). Common presenting symptoms of chest pain, breathlessness, cough and palpitations were reported in 82, 60, 40 and 29% of IHD patients respectively. However, IHD with concomitant COPD presented with symptoms of breathlessness 78%, cough 64%, chest pain 49% and palpitations in 31% only.

Conclusion: IHD patients with COPD were more common among males than females. Breathlessness and cough were more common presenting symptoms in IHD patients with concomitant COPD than non-COPD.

Keywords: Ischemic heart disease; COPD; Gender difference; Symptoms; Clinical presentation.

Introduction

Ischemic heart disease (IHD) is the leading cause of morbidity and mortality in non-communicable group of diseases. By year 2030, Chronic Obstructive Pulmonary Disease (COPD) will be the third leading cause of death globally. IHD and COPD coexist in 18-50% of patients in different studies. This association can be due to sharing common pathophysiology and risk factors. Diagnosis of COPD in patients with ischemic heart disease remains a challenge not only in emergency department but also in any clinical setting mainly because of common symptomatology.

Gender differences in clinical manifestations of IHD patients was a well-documented phenomenon in literature. Similarly, COPD patients revealed gender related differences in clinical presentation, treatment and outcome. However, in patients with IHD and COPD, gender related differences in clinical presentation may help to identify undiagnosed COPD.
and thus leads to appropriate management.

This study was conducted with the objective to determine gender related differences in clinical presentation among IHD patients with COPD.

Methods

This was a descriptive cross sectional study conducted among ischemic heart disease patients coming to private clinic during Nov 2015 till Feb 2016. Ethical approval is taken from institutional board. Consecutive sampling technique were employed. Written informed consent were taken from all patients fulfilling the inclusion criteria. Patients with Asthma, Pneumonia, tuberculosis, Congestive cardiac failure, cor pulmonale, chronic kidney disease, sinusitis, pleural effusion or any cancer were excluded from the study. Data regarding demographics, smoking history and presenting symptoms were recorded on a structured questionnaire. COPD was diagnosed on the basis of spirometry findings of FEV1/FVC < 0.7 of percent predicted performed according to ATS guidelines by a trained technician. All data was entered in spss version 19 and analyzed. Numeric variables like age were computed in mean + SD, whereas categorical variables like gender, smoking history, presence of COPD, cough, breathlessness etc, were computed in percentages. Difference in male and female were determined using chi-square test with p < 0.05 set as statistically significance.

Results

Total of 133 patients with Ischemic heart disease, who gave written informed consent and fulfilled the inclusion criteria were recruited in the study. Mean age of the study participants were 58 ± 11.9 yrs. Seventy eight (59%) and 55 (41%) were males and females respectively. Distribution of common presenting symptoms was shown in graph 1, with chest pain and breathlessness most frequent symptom reported by 82 and 60 % of IHD patients. Mean Body Mass Index (BMI) of the study participants were 27 ± 6.7 Kg/m2. COPD was diagnosed in 59 (44%) of IHD patients. Smoking history was found in 59 (44%) of IHD patients with 30% of all IHD patients had > 10 pack year history of smoking.

Data comparing values of different variables between male and female study participants were given in Table 1. Independent sample t test was used to determine difference between mean age and mean BMI of male and female groups, whereas for categorical variables like COPD, smoking, chest pain, breathlessness, cough and palpitations chi square was used to determine difference between male and female study participants. P < 0.05 was found for BMI,
COPD, Smoking history, Cough and breathlessness indicating that there was a statistically significant difference between male and female IHD patients regarding these variables.

Further analysis of symptoms between male and female IHD patients with and without COPD was shown in table 2. It revealed that Patients with COPD more frequently presented with breathlessness and cough as compare to non COPD patients.

**Discussion**

Ischemic heart disease and COPD frequently co-exist, though may remain undiagnosed. In our study, 59 (44%) patients of IHD were found to be suffering from COPD and interestingly, smokers were also 44%. This result is similar to other studies conducted nationally and internationally, though in young males with acute myocardial infarction, there was up to 80% prevalence of current smoking. In our study we found 5 female smokers as well with ischemic heart disease. This is an important neglected risk factor among female patients in our setup. However, we found 19 female IHD patients with concomitant COPD, their risk factor could be exposure to biomass fuel.

Mean age of our study participants were 58 ± 11.9 yrs. There was no significant difference in the age of male and female study participants, emphasizing the importance that after 50 years, gender related difference between male and female become equal in ischemic heart disease patients. Body Mass Index of study participants were 27 ± 6.7 Kg/m². However, our study showed a statistically significant difference between male and female BMI. Female BMI was in obese range and similar higher BMI among females were found in other studies. High BMI among female participants can be explained with our cultural norms, mostly elderly females due to lack of exercise, eating habits were obese, moreover, patients with IHD- COPD physical activity was limited due to

<table>
<thead>
<tr>
<th>Total</th>
<th>Male N=78</th>
<th>Female N=55</th>
<th>p-value (t-test /chi-square)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in yrs (Mean ± SD)</td>
<td>133</td>
<td>59 ± 11.6</td>
<td>56 ± 12</td>
</tr>
<tr>
<td>BMI (Mean ± SD)</td>
<td>133</td>
<td>25± 5.6</td>
<td>29± 7.6</td>
</tr>
<tr>
<td>COPD</td>
<td>59</td>
<td>40</td>
<td>19</td>
</tr>
<tr>
<td>Smoking history</td>
<td>59</td>
<td>54</td>
<td>5</td>
</tr>
<tr>
<td>Chest Pain</td>
<td>109</td>
<td>65</td>
<td>44</td>
</tr>
<tr>
<td>Breathlessness</td>
<td>80</td>
<td>54</td>
<td>26</td>
</tr>
<tr>
<td>Cough</td>
<td>53</td>
<td>40</td>
<td>13</td>
</tr>
<tr>
<td>Palpitations</td>
<td>38</td>
<td>25</td>
<td>13</td>
</tr>
</tbody>
</table>

*P ≤ 0.05 statistically significant

<table>
<thead>
<tr>
<th>COPD</th>
<th>Total N (%</th>
<th>Palpitations N (%)</th>
<th>Cough N (%)</th>
<th>Breathlessness N (%)</th>
<th>Chest pain N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>40</td>
<td>14 (35)</td>
<td>29 (73)</td>
<td>35 (88)</td>
<td>33 (83)</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>4 (21)</td>
<td>9 (47)</td>
<td>11 (59)</td>
<td>16 (84)</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>18 (31)</td>
<td>38 (64)</td>
<td>46 (78)</td>
<td>49 (83)</td>
</tr>
<tr>
<td>No COPD</td>
<td>Male</td>
<td>38</td>
<td>11 (29)</td>
<td>11 (29)</td>
<td>19 (76)</td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
<td>9 (25)</td>
<td>4 (11)</td>
<td>15 (42)</td>
<td>28 (78)</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>20 (27)</td>
<td>15 (20)</td>
<td>34 (46)</td>
<td>60 (81)</td>
</tr>
</tbody>
</table>
symptoms, that further results in higher BMI.

Patients with IHD- COPD, share common presenting symptoms, thus making the diagnosis difficult, when presenting to emergency department. Different biochemical markers being studied in order to differentiate between the two diseases, however, as COPD remained undiagnosed among ischemic heart disease patients, therefore, evaluating presenting symptoms in depth will help to point towards this important and neglected co-morbidity (COPD), that is now emerging as an independent risk factor for Myocardial infarction. In our study, we found out breathlessness and cough as statistically significant presenting symptoms between male and female gender and also help in differentiating between IHD-COPD patients, similar results were found in literature.

We found out important findings in this study that can be utilized as a basis for future studies in this neglected population of IHD-COPD, with more robust study design. Moreover, this was descriptive cross-sectional study of a single centre.

Conclusion

IHD patients with COPD were more common among males than females. Breathlessness and cough were more common presenting symptoms in IHD patients with concomitant COPD than non-COPD.

References


14. Ashraf A, Khan S, S A. Frequency of modifiable risk factors and their outcome in Patients with...


