Evaluation of anxiety in chronic obstructive pulmonary disease patients

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Abstract

Introduction: Anxiety and depression are two common psychological disorders found in COPD patients. COPD patients with these comorbidities have poor quality of life, frequent hospitalization, poor compliance and increase morbidity. The aim of present study is to assess the prevalence of anxiety in COPD patients and compare it with patients with other illness.

Material and Method: A total of 100 patients were taken. Out of 100 patients 60 patients were of COPD in study group and 40 matched control having medical illness other than COPD. Psychiatric evaluation was done for each case on a semi structured Performa and anxiety was measured using Hamilton Anxiety Scale and score was measured in each case. For the purpose of this study the patients were divided into two groups

Result: In study group 30(50%) patients have anxiety as compare to 12(30%) patients in control group with p<0.05. In study group 11(35.4%) patients having anxiety belongs to mild degree of COPD, 17(65.3%) having anxiety belongs to moderate degree of COPD and 2(66.6%) having anxiety belong to severe degree of COPD. In study group 30 patients have anxiety, out of them 7 (30.4%) patients of anxiety have of chronic bronchitis, and 17 (85%) patients of anxiety are of Emphysema and 6 (38.2%) patients having anxiety belongs to mixed type.

Conclusion: COPD patients have high risk of development of anxiety than the other chronic illness. Anxiety is often associated with depression and the risk increases with the severity of COPD. So for successful treatment of COPD, not only medical care but also behavioral and psychological care should be render.

Keywords: Anxiety, COPD, depression, emphysema
**Group I: Patients with COPD**

**Inclusion criteria**
- Diagnosed as COPD
- Duration of illness for at least one year

**Exclusion criteria**
- Presence of any other long standing medical illness like Hypertension, Diabetes etc.
- History of psychiatric illness of any nature than anxiety and depression in self or 1st degree relatives

**Group II: Patients with other medical illness**

**Inclusion criteria**
- Presence of any medical illness other than COPD

**Exclusion criteria**
- History of psychiatric illness of any nature other than anxiety and depression in self or 1st degree relatives following investigation were done
- Specially designed semi structured Performa for sociodemographic variables
- Hamilton rating scale for Anxiety
- Pulmonary function test

**Result**

In this study we have taken total 100 patients. We have divided these patients in two group, control group and study group. We have taken 60 patients of chronic obstructive pulmonary disease (COPD) in study group 40 patients having illness other than COPD into control group. Patients were selected on the basis of random criteria and were studied after taking their full consent.

**Table 1A: Symptoms analysis of Anxiety in study and control group**

<table>
<thead>
<tr>
<th>Score Anxiety (Hamilton Anxiety Rating Scale)</th>
<th>Study group (%) (n=60)</th>
<th>Control Group (%) (n=40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Anxiety (Less than 18)</td>
<td>30(50%)</td>
<td>28(70%)</td>
</tr>
<tr>
<td>Mild Anxiety (18-24)</td>
<td>10(16.6%)</td>
<td>8(20%)</td>
</tr>
<tr>
<td>Moderate Anxiety (25-29)</td>
<td>17(28.34%)</td>
<td>4(10%)</td>
</tr>
<tr>
<td>Severe anxiety (&gt;30)</td>
<td>3(5%)</td>
<td>0(0%)</td>
</tr>
</tbody>
</table>

**Table 1B: Total Number of Patients Having Anxiety**

<table>
<thead>
<tr>
<th>Study (n=60)</th>
<th>Control (n=40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30(50%)</td>
<td>12(30%)</td>
</tr>
</tbody>
</table>

Z=2.06, P<0.05

In study group 30(50%) have no anxiety as compare to 28(70%) in control group.

In study group 30(50%) patients have anxiety as compare to 12(30%) patients in control group with p<0.05.

Majority of patients in study group have moderate anxiety 17(28.3%) and in control group majority of patients have mild anxiety and no patients in control group is having severe anxiety.

**Table 2: Anxiety and its correlation with the severity of COPD in study group**

<table>
<thead>
<tr>
<th>Severity of COPD</th>
<th>Study group (n=60)</th>
<th>No. of patients having anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEV1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I Mild</td>
<td>31 (51.6)</td>
<td>11 (35.4%)</td>
</tr>
<tr>
<td>II Moderate</td>
<td>26 (43.3%)</td>
<td>17 (65.3%)</td>
</tr>
<tr>
<td>III Severe</td>
<td>3 (5%)</td>
<td>2 (66.6%)</td>
</tr>
</tbody>
</table>

In study group 11(35.4%) patients having anxiety belongs to mild degree of COPD, 17(65.3%) having anxiety belongs to moderate degree of COPD and 2(66.6%) having anxiety belong to severe degree of COPD.

**Table 3: analysis of anxiety in study and control group**

<table>
<thead>
<tr>
<th>Study Group (n=60)</th>
<th>Control Group (n=40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety-GAD</td>
<td>16 (53.3%)</td>
</tr>
<tr>
<td>Mixed Anxiety and Depression</td>
<td>14 (23.3%)</td>
</tr>
</tbody>
</table>

In study group 30(50%) patients have anxiety among them 16(53.3%) patients have GAD and 14(23.3%) patients have mixed anxiety and depression.

In control group 12 (30%) have anxiety among them 5(41.6%) patients have GAD, rest 7(17.5%) patients have mixed anxiety and depression.

**Table 4: Prevalence of Anxiety in various types of COPD**

<table>
<thead>
<tr>
<th>Type of COPD</th>
<th>Prevalence of anxiety (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Bronchitis</td>
<td>7 (30.4%)</td>
</tr>
<tr>
<td>Emphysema</td>
<td>17 (85%)</td>
</tr>
<tr>
<td>Mixed</td>
<td>6 (35.2%)</td>
</tr>
</tbody>
</table>

Z=4.3

P<0.05

In study group 30 patients have anxiety, out of them 7 (30.4%) patients of anxiety have of chronic bronchitis, and 17 (85%) patients of anxiety are of Emphysema and 6 (38.2%) patients having anxiety belongs to mixed type.

**Discussion**

In our study we found 50% prevalence of anxiety in study group as compare to 30% in control with “P value <0.05” showing significant difference in prevalence of anxiety in study and control group suggesting higher prevalence of anxiety in COPD patients as compare to patients of other medical illness. Our study coincides with that of Dowson C. et al who studied the prevalence rates of anxiety in patients of COPD and 79 patients were observed and 39(50%) had clinically significant anxiety [11]. They also concluded that higher HAD score was more common in patients with severe COPD and in female patients of COPD. A recent study by Gehan Ellassal et al [12] on 80 COPD and 80 Healthy controls found anxiety in 22.5% of COPD patients as compare to only 5% in control group. Study by Einser et al [13] had reported that COPD patients had 85% more chances of developing anxiety than the healthy matched control. Various other studies also stated that score of anxiety was higher in COPD patients as compare to the control group [14, 15]. A literature review on prevalence of anxiety in COPD patients has reported 10-40% prevalence range of anxiety in COPD patients [16].

In our study mixed anxiety and depression was found in 23.3% of COPD patients while in control group it was found in only 17.4% cases. Other studies also stated that anxiety was often associated with depression in COPD patients [12, 15, 16].

In the present study the prevalence of anxiety in (I) mild COPD (FEV1% 60-79%) is 35.4% and (II) Moderate COPD (FEV1% 40-59%) is 65.3% and severe COPD (FEV1% <40%) is 66.6%. On comparing prevalence of anxiety in (I) mild COPD and (II) moderate COPD the “p value is <0.05” showing significant difference in prevalence of anxiety in I and II suggesting prevalence rate of anxiety is directly proportional to severity of COPD. Other studies also show
that the prevalence and severity of anxiety were correlated with the severity of COPD [12, 19, 20, 21, 22]. However in two studies, no correlation was found between the severity of COPD and anxiety [19, 23].

In our study (38.3%) patients are of chronic bronchitis (33.3%) patients are of Emphysema and (28.3%) patients are of mixed type. Among them prevalence of Anxiety are 30.4%, 85% and 35.2% respectively. On comparing prevalence of anxiety in chronic bronchitis (30.4%) and Emphysema (85%) the value of “p<0.05” showing significant difference of prevalence of anxiety in patients with chronic bronchitis and patients having emphysema and suggesting higher prevalence of anxiety in patients having emphysema. Our findings are similar to Eiser N. et al [24] who studied the effect of psychotherapy in moderately severe COPD, 20 patients of COPD were selected. They also found out anxiety was common in patients having emphysema.

Conclusion
COPD patients have high risk of development of anxiety than the other chronic illness. Anxiety is often associated with depression and the risk increases with the severity of COPD. So for successful treatment of COPD, not only medical care but also behavioral and psychological care should be rendered.

References
15. Withers NJ, Rudkin ST, White RJ. Anxiety and Depression in Severe Chronic Obstructive Pulmonary Disease: The Effects of Pulmonary Rehabilitation. Bristol, UK: Department of Medicine, Frenchay Hospital, 1999.