PSYCHOLOGICAL CONDITION IN HEART PATIENTS WITH DIABETES AND HYPERTENSION

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ABSTRACT

Heart diseases are common in population with diabetes and hypertension. Depression, anxiety and stress prevalent in patients with diabetes and hypertension and also psychological problems are the risk factors for heart diseases especially cardiovascular disease. The aim is study of psychological issues in heart patients with hypertension and diabetes.

The 144 heart patients were participated in this study. 38 patients had diabetes comorbidity with their heart disease, 44 of them had hypertension, 30 patients had diabetes and hypertension comorbidity with heart disease and 32 of them had none of comorbidity with their heart disease. The depression, anxiety and stress scale was used for collecting data. Frequency and variance analysis were used for analyzing the data.

The patients with hypertension and diabetes that showed severe depression, anxiety and stress were higher than other groups. The number of patients that didn’t have any comorbidity with their heart disease in normal psychological condition was higher than other groups. Variance analysis showed the differences between groups.
In this study, patients with hypertension and diabetes comorbidity with heart disease were at a higher risk for psychological problems.

**Keywords:** Heart Disease, Diabetes, Hypertension, Depression, Anxiety, Stress

**INTRODUCTION**

Coronary heart disease is the leading cause of death around the world (1). Mortality because of cardiovascular disease is very high but it decline each year in both gender (2). Both of incidences and prevalence of coronary artery disease rise with increasing age (3). But some studies indicated that coronary heart disease decrease in high-income countries because of reduction of some risk factors such hypertension and diabetes in population because of improved therapeutic options (4,5,6). Evidence showed that psychological conditions such as, depression (7), anxiety and stress have a very important role in the etiology, growth and outcome of heart disease (8, 9,10,11). Psychological symptoms that are prevalent in heart patients, lead to increasing mortality rate in patients (12). According to world health organization epidemic of diabetes increase in the developing countries, and most studies pointed out that anxiety and depression are common disorders in people with diabetes than others (13,14). Furthermore, depression increases risk of mortality in people with diabetes (15,16). Evidence has revealed that heart disease is prevalent in type 2 diabetes mellitus (17,18). CHD is the main cause of death in both type 1 and type 2 diabetes mellitus (19). Mortality rate is increased in diabetic women more than men. Some risk factors such as, plasma cholesterol, blood pressure and smoking are important for cardiovascular mortality in diabetic patients (17,20). Hypertension is a major risk factor for cardiovascular disease (21) and accelerates significantly the development of atherosclerosis (22). In addition, diabetes is related to prevalence of hypertension in heart patients (19). This relation is bidirectional because hypertension also is the main cause of death among patients with diabetes mellitus and reoccurring of CHD (23). Studies are suggested that there is significant association between hypertension and psychological disorders such as depression, anxiety and stress (24,25,26). Because of the impact of hypertension and diabetes in heart diseases and in addition psychological issues are common in hypertension and diabetes patients, the aims of the present study were to investigate: 1) whether depression, anxiety and stress impact the heart patients with diabetes or
hypertension; 2) whether depression, anxiety and stress are different in patients with hypertension or diabetes and both of them.

METHODOLOGY
The study population consisted of one hundred and forty four heart patients that were collected from Baqiat-Allah hospital in Tehran and Shahid Beheshti hospital in Qom between October 2013 and February 2014, and who consented to participate in the study, were conveniently collected. The mean age of the total sample was 57.66±7.26 years. 38 patients had diabetes comorbidity with their heart disease, 44 of them had hypertension, 30 patients had diabetes and hypertension comorbidity with heart disease and 32 of them had none of comorbidity with their heart disease.

Clinical variables were obtained from the patients’ medical records that comprised comorbidities (Diabetes, Hypertension). There were inclusion and exclusion criteria. Inclusion criteria: 1- Being in the age group between 41 to 70 years; 2- patients informed consent to participate in the study. Exclusion criteria: 1- history of any cardiac surgery; 2- having an important psychological disorder; 3- being under the psychological treatment; 4- having addiction to any drug.

For data collection, the following instrument was used: Depression, anxiety and stress survey (DASS-21) that has been used for assessing the level of anxiety, depression and stress of patients. In 1995, this questionnaire, for the first time, has been presented by Loviband and Loviband (27). The first form of this questionnaire has 42 questions, but in this research the form that has 21 questions, is used and validity of this scale in Iran, has been assessed by (28) on the population of Mashhad that the validity of depression 0/7, anxiety 0/66 and stress 0/76 has been reported in it.

Variance analysis was used for comparing depression, anxiety and stress’ means between groups. Descriptive static was used to report frequencies of depression, anxiety and stress in groups.

RESULTS
The sample participants had an average age of 57.66 years. Most of them were male (80 patients) and 64 patients were female. Also, all of the patients were married. Table 1 shows the patients baseline characteristics. Table 2, shows the frequencies of depression, anxiety and stress in four groups. More patients in four groups showed moderate depression. 11 Patients with hypertension and diabetes comorbidities with heart disease have severe depression. 19 patients with hypertension and diabetes showed severe anxiety. Moderate stress is higher in patients
with diabetes than other groups. Also, 1 patient in group without any of comorbidities showed moderate stress. Table 3, showed the differences between groups. Stress, anxiety and depression are different between groups.

Table 1: Baseline characteristic for the total sample

<table>
<thead>
<tr>
<th>Disease</th>
<th>Gender</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>Diabetes</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Hypertension</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Diabetes, hypertension</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>None of them</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>total</td>
<td>80</td>
<td>64</td>
</tr>
</tbody>
</table>

Table 2: frequencies of depression, anxiety and stress between groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>diabetes</th>
<th>hypertension</th>
<th>Hypertension,diabetes</th>
<th>None of them</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>normal</td>
<td>% 29(71)</td>
<td>% 18(48)</td>
<td>% 0(0)</td>
</tr>
<tr>
<td></td>
<td>Mild</td>
<td>% 24(39)</td>
<td>% 27(32)</td>
<td>% 22(26)</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>% 45(97)</td>
<td>% 52(23)</td>
<td>% 37(10)</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>% 24(39)</td>
<td>% 18(18)</td>
<td>% 0(0)</td>
</tr>
<tr>
<td></td>
<td>Extremely severe</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anxiety</td>
<td>normal</td>
<td>% 18(9)</td>
<td>% 11(3)</td>
<td>% 0(0)</td>
</tr>
<tr>
<td></td>
<td>Mild</td>
<td>% 16(26)</td>
<td>% 22(10)</td>
<td>% 3(1)</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>% 40(15)</td>
<td>% 47(28)</td>
<td>% 18(5)</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>% 24(39)</td>
<td>% 18(18)</td>
<td>% 0(0)</td>
</tr>
<tr>
<td></td>
<td>Extremely severe</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>stress</td>
<td>normal</td>
<td>% 27(10)</td>
<td>% 36(4)</td>
<td>% 14(4)</td>
</tr>
<tr>
<td></td>
<td>Mild</td>
<td>% 21(6)</td>
<td>% 27(2)</td>
<td>% 14(4)</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>% 51(39)</td>
<td>% 36(4)</td>
<td>% 33(3)</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>% 24(39)</td>
<td>% 18(18)</td>
<td>% 0(0)</td>
</tr>
<tr>
<td></td>
<td>Extremely severe</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: variances analysis of stress, depression and anxiety between groups

<table>
<thead>
<tr>
<th>variables</th>
<th>Sum of square</th>
<th>df</th>
<th>Mean square</th>
<th>f</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>Between groups</td>
<td>14154.670</td>
<td>3</td>
<td>484.890</td>
<td>22.558</td>
</tr>
<tr>
<td></td>
<td>Whithin groups</td>
<td>2901.833</td>
<td>140</td>
<td>21.495</td>
<td></td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>4356.504</td>
<td>143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>Between groups</td>
<td>1260.704</td>
<td>3</td>
<td>420.235</td>
<td>22.022</td>
</tr>
<tr>
<td></td>
<td>Whithin groups</td>
<td>2576.088</td>
<td>140</td>
<td>19.082</td>
<td></td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>3836.791</td>
<td>143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>Between groups</td>
<td>689.127</td>
<td>3</td>
<td>229.709</td>
<td>22.798</td>
</tr>
<tr>
<td></td>
<td>Whithin groups</td>
<td>1360.255</td>
<td>140</td>
<td>10.076</td>
<td></td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>2049.381</td>
<td>143</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION

Nowadays, cardiovascular disorders are being more common in developing countries in comparison with developed ones. This ailment sometimes accompanied with other medical problems such as diabetes and hypertension. The goal of the present study was to elucidate the probable synergistic effect of stress, anxiety and depression in heart patients as well as with and without hypertension and diabetes. Diabetes itself is a risk factor for heart disease and stroke. Also,
many people with diabetes have other
conditions that increase their chance of
developing heart disease and stroke. These
conditions are called risk factors. Three
corresponded factors which affect
physiological state of the stricken people
studied in the current paper were depression,
anxiety and stress. Based on achieved data the
authors acclaim that patients with
hypertension and diabetes co morbidity with
heart disease are at higher risk for
psychological problems than other groups.
These conditions bring about other risk
factors and the patient suffers from damaging
psychological issues. We implied that patients
with hypertension and diabetes showed severe
depression, anxiety and stress higher than
other groups. The group of patients with any
other inconvenience beyond heart disease has
normal psychological condition and wasthe
most among the all. All of the above
mentioned observations are in good
agreement with the previous reports such as
Nicholson, Pelle, elis. According to our
findings we conclude that depression; anxiety
and stress impact the heart patients with
diabetes hypertension and may amplify heart
deficiencies. From variance analysis it can be
seen that there is remarkable difference
between groups. This result is in consistent
with previous reports too. Although
originally the effects like depression, anxiety
and stress have different trends in patients
with hypertension or diabetes and both of
them. Studies show that psychological
conditions such as, depression anxiety and
stress have a very important role in the
etiology, growth and outcome of heart
disease, so it must be controlled in these
patients. Studies suggest that there is clear and
meaningful connection between studied risk
factors like heart disease and psychological
disorders such as depression, anxiety and
stress. These kinds of scrutiny exaggerate the
importance of health homeostasis among the
patients with heart problems and aware the
specialists of these fields to do more research
socially and medically to help them live
healthy with fewer inconveniencies. Heart
attacks in people with diabetes are more
serious and more likely to result in death.

REFERENCES

heart disease by country, region, and age: Statistics from World Health
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168: 934-945.

issues facilitating recovery post-


