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Prevalence of Depression among Hypertensive Patients Attending a Rural Health Centre in Kanyakumari

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ABSTRACT

Background: Hypertension is a non-communicable disease leading to chronic morbidities and is found to have higher chance of suffering from depression. Hypertensive patients with co-morbid depression lead to lack of adherence to treatment, lost to follow up and poor compliance to lifestyle modification. Therefore it is very important to assess prevalence of depression among hypertensives.

Objectives: To study the prevalence of depression among hypertensive patients and its associates factors.

Methodology: A cross-sectional study was done among 200 hypertensives attending the RHC, Marapaddi, Kanayakumari during November 2017 to February 2018. Depression was assessed using a self reported and previously validated PHQ-9 questionnaire. Data was analysed using statistical software SPSS.

Results: Out of the 200 patients, 65% were women and 35% were men. 41% had depression, of which 28.5% had mild depression, 7% had moderate depression, 3% had moderately severe depression and 2.5% suffer from severe depression. Some factors like female gender, low socio economic status, positive family history were found to be significantly associated with depression ($p<0.05$).

Conclusion: The study results show that there is high prevalence of depression among hypertensives. The early detection and prompt treatment with life style modifications can prevent depression among hypertensives.

Keywords: Hypertensive patients, depression, prevalence

INTRODUCTION

Depression and hypertension are the most common chronic diseases globally. The prevalence of depression is more common among patients with chronic illness like hypertension, diabetes mellitus, cardiovascular diseases[1, 2]. Both of hypertension and depression show a bidirectional relationship, in which hypertension increases the vulnerability of developing depression while depression as such increases the risk and severity of hypertension[3]. This relationship results in a continuous cycle of physical health and poor mental status. In many epidemiological studies shows increasing evidences that depressive symptoms and major depression are associated with increased morbidity and mortality from illnesses such as diabetes and heart diseases[4, 5].

According to World Health Organization (WHO) survey performed in 17 countries reported that one person out of every 20 people had a depressive episode[6]. All around the world about 350 million people were affected by depression and it possesses a lifetime risk of about 7%[7]. Depression is expected to be one of the leading causes of disability by 2030 globally. It is most likely to cause an increase of 5.7% in the global burden of disease by 2020[1, 2].

Hypertension is one among the leading causes of mortality and disability worldwide. According to a study done in 2010 it was reported that one fourth

of the adult population were diagnosed with hypertension and the proportion may increase to one third of the adult population[8, 9]. Hypertensive patients with co-morbid depression lead to lack of adherence to treatment, lost to follow up and poor compliance to lifestyle modification[10]. Therefore it is very important to assess prevalence of depression among hypertensives.

OBJECTIVES

The study was conducted to find out the prevalence of depression among hypertensive patients attending the rural health care centre and also to study the factors associated with depression among hypertensive patients.

MATERIAL AND METHODS

The study was a cross sectional study done during November 2017 to February 2018.The study was done among patients more than 18 years of age who were diagnosed with hypertension for atleast one year attending the rural health centre Marapaddi. The sample size was estimated calculated by the formula $p=4pq/l^2$ with a prevalence of 34%[10] , a precision of 5% and with an allowable error (l) of 20% and the sample size came to be 194 and round off to 200.

The variables studied in this study were Sociodemographic variables, history of hypertension, family history of hypertension, its duration, on treatment, co morbidities. Patients who have been diagnosed with pregnancy, renal diseases, cancer, dementia, depression and psychotic diseases were excluded from the study. Diagnosed hypertensive patients who are on regular treatment and patients who are giving consent were included in the study. Newly diagnosed hypertensive, mentally challenged, terminal illness patients were excluded from the study. The Blood pressure was measured twice for a person on the right arm 5 minutes apart, and the average value was taken as the BP of the person and expressed in terms of mm of mercury using sphygmomanometer.

Depression was assessed using a self reported and previously validated questionnaire Patient Health Questionnaire – 9 (PHQ-9) Tamil version. PHQ-9 is a 9 item questionnaire with score ranging from 0 to 27. This score is divided into 5 category where score of 0 - 4 represent no depression, score of 5 – 9 represent mild depression, score of 10-14 represent moderate depression, score of 15-19 represent moderately severe depression and a score of more than 20 represent severe depression[11]. The stage or degrees of hypertension was classified according to Joint National Committee On Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC-7) Percentages and proportions were calculated. Data was analysed statistical software SPSS[12]. In order to minimize recall bias questions concerning daily habits as well as depressive symptoms not more than two weeks prior are included. The cut off score of more than or equal to 6 was taken as Stafford et al reported that it has optimized sensitivity (83%) and specificity (79%) among CAD patients[13].

The data was analysed using Statistical package for Social Sciences (SPSS) Software. Descriptive statistics and frequencies for each variable were calculated and represented as percentages. Statistical tests were done to find the association between all the variables with the state of depression (depressed or not depressed). A p value of < 0.05 was considered to be significant. Chi-square test was used for bivariate analysis.

RESULTS

The study included two hundred adult patients above the age of 18 years diagnosed with hypertension attending rural health center Marapaddi, Kanayakumari. Out of the 200 patients 130(65%) of them were women and 70(35%) of them were men. The Mean age of the patients was 66.16±8.62. Most of them belong to the age group of more than 65 years of age, 131 (65.5%) and 121(60.5%) of them belong to below poverty line. Mean duration of hypertension was 6.14±2.72. 76 (38%) had hypertension for more than. Among the hypertensive 140(70%) of them were on medication. 113 (56.5%) of them are married and living with spouse. 156(78%) of them have no physical activity and 139 (69.5%) of them have co morbidities & DM was the highest 89 (44.5%).

Depression was classified by using the cut off score of depression of more than or equal to 5. Out of the total 200 patients 82(41%) of them had depression. Out of the 82 patients 57(28.5%) had mild depression, 14(7%) had moderate depression, 6 (3%) had moderately severe depression and 5(2.5%) suffer from severe depression. The prevalence and percentage distribution of depression in each category is shown in Table 1 and Figure 1.

Table 1: Prevalence of depression among the study subjects, N=200.

Depression	Participants (n) (%)
No depression	118 (59)
Mild depression	57 (28.5)
Moderate depression	14 (7)
Moderately severe depression	6 (3)
Severe depression	5 (2.5)
Total	200 (100)

Bivariate analysis was used to assess the factors associated with depression. The factors showed significant association along with the measure of risk is shown in the Table 2. Factors like female gender, low socio economic status, positive family history, uncontrolled of blood pressure, not taking medication and presence of comorbidities were found to be significantly associated with depression (p<0.05). Whereas age less than or equal to 65 years, living with spouse and duration of hypertension less than or equal to 6 years were found to be protective. In binary logistic regression the factors that were found to be associated with depression were positive family history, duration of hypertension less than or equal to 6 years and presence of comorbidities (p<0.05).

Table 2: Factors found significantly associated with depression among the study subject

Factors	Depressive (n=82) (%)	Non depressive (n=118) (%)	p value	OR (CI)
Age				
< 65 years	20 (29)	49 (71)	0.012	0.454 (0.244-0.847)
>65 years	62 (47.3)	69 (52.7)		
Gender				
Females	61 (46.9)	69 (53.1)	0.020	2.063 (1.114 -3.821)
Males	21 (30.0)	49 (70.0)		
Marital status				
Living with spouse	37 (32.7)	76 (67.3)	0.002	0.459 (0.256-0.805)
Single	45 (37.7)	42 (48.3)		
SES				
BPL	61 (50.4)	60(49.6)	<0.001	2.808 (1.521 – 5.185)
APL	21(26.6)	58 (73.4)		
Family history				
Present	61 (52.5)	53(46.5)	<0.001	3.562 (1.972 – 6.585)
Absent	21 (24.4)	65 (75.6)		
BP control				
Uncontrolled	53 (60.2)	35 (39.8)	<0.001	4.334 (2.377 – 7.904)
Controlled	29 (25.9)	83 (74.1)		
Duration of BP				
< 6 years	14 (11.3)	110 (88.7)	<0.001	0.015 (0.006-0.038)
>6 years	68 (89.5)	8 (10.5)		
On Medication				
No	37 (61.7)	23 (38.3)	<0.001	3.396 (1.809-6.375)
Yes	45 (32.1)	95 (67.9)		
Co-morbidities				
Present	67 (48.2)	72 (51.8)	0.002	2.854 (1.454-5.583)
Absent	15 (24.6)	46 (75.4)		

DISCUSSION

In the present study was a cross sectional study done among 200 subjects and the depression was assessed using the PHQ- 9 questionnaire and the prevalence of depression among hypertensives were found to be 41%. A similar study was done by Prathibha et al in trivandrum[10] and reported that the prevalence of depression among hypertensives to be 33.3%. In another similar study done by Kosana et al[14] in Bosnia and Herzegovina and the prevalence was found to be 46%. The prevalence of depression among hypertensives in the present study is comparable with the rest of the studies. Li et al[7] done a a systematic review and meta-analysis with 41 studies on the similar topic and summarized the prevalence of depression among hypertensive to be 26.8% with a range of 21.7-32.3%.They also concluded that the heterogeneity in values is mainly due to the difference in the method of evaluation.

On bivariate analysis, female gender was associated with depression among hypertensives. The risk of female gender for the development of depression was 2.063(OR). According to WHO facts on gender and health, it also emphasised that depression is twice common in females when compared to males[15]. In other similar studies done in Trivandrum(Kerala)[10],Kashmir[16] and in a western community[17] also reported similar finding with prevalence of depression in females significantly higher than that of males.

Other factors like age, marital status, socio economic status, family history, uncontrolled Blood pressure, duration of hypertension, taking medication and presence of comorbidities were also found to be significantly associated with depression (p<0.05). Married and living with spouse is found to have a protective effect than living single. A study done by Prathibha et al in Trivandrum[10], Bulloch et al[18], Akhtar et al[17], Kessler et al[19] also reported the same. In the present study physical ac-

tivity does not have any significant association with depression among hypertensives. Unlike the present study Prathibha et al[10] and Yates et al[20] study physical activity is found to be a protective factor against depression among hypertensives. In Prathibha et al[10] and Rubio Guerra et al[21] reported in their studies that poor blood pressure control was a risk factor for depression among hypertensives.

The study had few limitations like firstly, the study design is a cross sectional study thus the risk factors found out may be further tested using case control study. Secondly, the presence of depression was assessed by a questionnaire based screening tool rather than diagnosed by a psychiatrist. Thirdly, self-reported symptoms may have been vulnerable to socio cultural factors and recall bias.

CONCLUSION

In the present study we conclude that there was a high prevalence of depression among hypertensives which is more than the general population. The factors like female gender, low socio economic status, positive family history, uncontrolled of blood pressure, not taking medication and presence of comorbidities were found to be significantly associated with depression. The early detection and prompt treatment with life style modifications can prevent depression among hypertensives.

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