

ORIGINAL ARTICLE**Incidence of Depression amongst Hypertensive Patients- A cross sectional study**Rajesh Kumar Khare¹, Pulak Raj²^{1,2} Department of General Medicine, Integral institution of Medical Science & Research, Lucknow, U.P., India**ABSTRACT:**

Background: A variety of studies that are done indicate that symptoms of anxiety are basically the psychological factors that are associated with the occurrence of hypertension. Even though there is much of association between depression and hypertension, not many studies have been conducted to determine the exact prevalence. The aim of the present study is to determine prevalence of depression amongst hypertensive patients reporting to the hospital. **Materials and methods:** This present cross sectional study was conducted in the Department of General Medicine during a period of 8 months (June 2015- February, 2016). In this study patients diagnosed with hypertension who were above the age of 25 years were included the study. Patient's demographic data like age, gender and socioeconomic status was filled in a predesigned performa. Height and weight of the individuals were noted and their BMI was calculated. BMI of less than 25 Kg/m² was considered normal and more than 29.9 Kg/m² were considered obese. Beck Depression inventory was used for the estimation of depression. All the data obtained was arranged in a tabulated form and analysed using SPSS software. Data was expressed as frequency and percentage. Chi square test was used for analysis. P value of less than 0.05 was considered significant. **Results:** In this study a total of 300 subjects were enrolled. The mean age of the participants was 37.54 +/- 5.33 years. In our study there were 55% males and 45% females. Out of males, 10.3% (n=17) had depression and out of females, 19.3% (n= 26) had depression. There were 85 subjects who belonged to upper class, 128 belonged to middle class and 87 to lower class. In upper class 15.3% subjects had depression, 11.7% in middle class had depression. **Conclusion:** From the above study we can conclude that hypertension is generally associated with depressive and anxiety symptoms. In our study there were 10.3% males and 19.3% females who were hypertensive and had undiagnosed depression

Key words: Anxiety, Depression, Hypertension.

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INTRODUCTION

Depression contributes to the global burden of disease significantly. According to the World Mental Health Survey which was conducted in 17 countries showed that on average about 1 in 20 people reported having an episode of depression in his/her life. Depression affects 350 million people around the world,¹ and carries a lifetime risk of 7%.² To determine the link between anxiety with hypertension has been of interest for many years among various researchers. A variety of studies that are done indicate that symptoms of anxiety are basically the psychological factors that are associated with the occurrence of hypertension. In a study conducted by Mittal BV et al, approximately one fourth of the adults were found suffering from hypertension, and the proportion is expected to reach 1/3 by 2025.³ Anxiety leads symptoms and responses that can cause rise in blood pressure.

Studies conducted by US veterans showed a strong association between concomitant presence of hypertension and generalized anxiety disorder (GAD) and

major depressive disorder (MDD).⁴ Moreover hypertensive people suffer from somatic symptoms that lower the quality of life and leads to role impairment.⁵ All these factors make them more prone to psychological distress and hence leading to depression.⁶ Improvement in the psychological aspect of healthcare is becoming important in everyday life. Many psychologists have been doing research to determine the mental needs of the patients. It is very necessary to determine the prevalence of depression amongst hypertensive patients so the exact burden of the disease can be determined. Even though there is much of association between depression and hypertension, not many studies have been conducted to determine the exact prevalence. The aim of the present study is to determine prevalence of depression amongst hypertensive patients reporting to the hospital.

MATERIALS AND METHODS

This present cross sectional study was conducted in the Department of general medicine during a period of 8 months (June 2015- February, 2016). In this study

patients diagnosed with hypertension who were above the age of 25 years were included the study. Patients with previous history of depression or on anti hypertensive medications were excluded from the study. Patients having complications of hypertension like retinopathy were also excluded from the study. The study was approved by the Institute’s ethical board and all the subjects were informed about the study and a written consent was obtained from all in their vernacular language.

Patient’s demographic data like age, gender and socioeconomic status was filled in a predesigned performa. Height and weight of the individuals were noted and their BMI was calculated. BMI of less than 25 Kg/m² was considered normal and more than 29.9 Kg/m² were considered obese. Beck Depression inventory was used for the estimation of depression. This scale quantifies the number of depressive symptoms into broad categories such as sadness, hopelessness, feeling of guilt, changes in sleep, and changes in appetite. A BDI score of greater than 20 was marked as depression patient and less than 20 as non depression.

All the data obtained was arranged in a tabulated form and analysed using SPSS software. Data was expressed as frequency and percentage. Chi square test was used for analysis. P value of less than 0.05 was considered significant.

In this study a total of 300 subjects were enrolled. The mean age of the participants was 37.54 +/- 5.33 years. In our study there were 55% males and 45% females. Out of males, 10.3% (n=17) had depression and out of females, 19.3% (n= 26) had depression. There were 85 subjects who belonged to upper class, 128 belonged to middle class and 87 to lower class. In upper class 15.3% subjects had depression, 11.7% in middle class had depression. There were 19 subjects of lower class who had depression. Majority of the subjects in this study were literate (79.7%). There were 32.8% of illiterate subjects who were depressive. There was a significant effect of literacy on depression rate. The subjects were aged between 25- 75 years. There were 79 subjects who were between 25-45 years, 172 subjects between 46-65 years. There were 17 subjects of age group 46-65 years who were depressive. Only 28.6% subjects who were more than 65 years showed undiagnosed depression. There were 161 subjects who had normal BMI, 120 subjects were overweight. 16% of the overweight subjects, 31.6% of obese subjects had depression. Out of normal subjects only 14.9% had depression. In 66.3% of the subjects, systolic blood pressure was above 140mm Hg. There were 22 subjects whose blood pressure was less than 140 mm Hg had symptoms of depression. Diastolic blood pressure was more than 90 mm Hg in 65.3% subjects. There were 17 subjects with diastolic blood pressure less than 90mm Hg and 40 subjects with diastolic blood pressure more than 90 mm Hg who had depression. (Table1)

RESULTS

Table 1: shows the compiled results of the study

| Variable | Total (N/%) | Depression (N/%) | Non Depression (N/%) | P Value |
|---------------------------------|-------------|------------------|----------------------|---------|
| Gender | | | | |
| Male | 165/55 | 17/10.3 | 148/89.6 | >0.05 |
| Female | 135/45 | 26/19.3 | 109/80.7 | |
| Socioeconomic status | | | | |
| Upper class | 85/28.3 | 13/15.3 | 72/84.7 | >0.05 |
| Middle class | 128/42.6 | 15/11.7 | 113/88.2 | |
| Lower class | 87/29 | 19/21.8 | 68/78.1 | |
| Education | | | | |
| Illiterate | 61/20.3 | 20/32.8 | 41/67.2 | <0.05 |
| Literate | 239/79.7 | 22/9.2 | 217/90.7 | |
| Age | | | | |
| 25-45 | 79/26.3 | 9/11.4 | 70/88.6 | <0.05 |
| 46-65 | 172/57.3 | 17/9.9 | 155/90.1 | |
| >65 | 49/19.7 | 14/28.6 | 35/71.4 | |
| BMI | | | | |
| Normal | 161/53.6 | 24/14.9 | 137/85.1 | >0.05 |
| Overweight | 120/40 | 16/13.3 | 104/86.7 | |
| Obese | 19/6.3 | 6/31.6 | 13/68.4 | |
| Systolic blood pressure | | | | |
| <140 mm Hg | 101/33.7 | 22/21.7 | 79/78.2 | >0.05 |
| >140 mm Hg | 199/66.3 | 38/19.1 | 161/80.1 | |
| Diastolic blood pressure | | | | |
| <90 mm Hg | 104/34.6 | 17/16.3 | 87/83.6 | >00.05 |
| >90 mm Hg | 196/65.3 | 40/20.4 | 156/79.5 | |

DISCUSSION

A study done by Danish Psychiatric Central Research Register proved that patients with anxiety disorder had higher chances of hypertension when compared with rest of population.⁷ Whereas a study conducted in Hong Kong among showed that hypertension was associated with anxiety but it was not associated with depression.⁸ A study conducted by Wei and Wang found that 12% of known hypertensive patients had symptoms of anxiety . The risk of anxiety was associated with female gender, the duration of hypertension condition, and any history of hospitalization.⁹ In our study, Out of males, 10.3% (n=17) had depression and out of females, 19.3% (n= 26) had depression. There were 85 subjects who belonged to upper class, 128 belonged to middle class and 87 to lower class. In upper class 15.3% subjects had depression, 11.7% in middle class had depression. There were 19 subjects of lower class who had depression. Majority of the subjects in this study were literate (79.7%). There were 32.8% of illiterate subjects who were depressive. There was a significant effect of literacy on depression rate. The subjects were aged between 25- 75 years. There were 79 subjects who were between 25-45 years, 172 subjects between 46-65 years. There were 17 subjects of age group 46-65 years who were depressive. Only 28.6% subjects who were more than 65 years showed undiagnosed depression. There were 161 subjects who had normal BMI, 120 subjects were overweight. 16% of the overweight subjects, 31.6% of obese subjects had depression. Out of normal subjects only 14.9% had depression. In 66.3% of the subjects, systolic blood pressure was above 140mm Hg. There were 22 subjects whose blood pressure was less than 140 mm Hg had symptoms of depression. Diastolic blood pressure was more than 90 mm Hg in 65.3% subjects. There were 17 subjects with diastolic blood pressure less than 90mm Hg and 40 subjects with diastolic blood pressure more than 90 mm Hg who had depression.

In a study conducted by Kohrt et al in rural north western Nepal, the prevalence of depression was found to be 41%.¹⁰ In another study in southern Nepal, the prevalence of hypertension was found to be 17-43%.¹¹ in a study conducted by Luitel et al showed that with increasing age the prevalence of hypertension also increase.¹¹ In a study conducted by Winkel et al in the year 2014, they showed that women who are more anxious have increased chances of higher systolic blood pressure. Anxiety and hypertension generally co exist with each other. In a study conducted by Dinesh Neupane et al at urban Nepal, showed that prevalence of undiagnosed depression amongst hypertensive patients were 15%. In their study various other risk factors included male, illiteracy and smoking. They concluded that various behavioural, adherence and demographic factors were associated with hypertension.¹³

CONCLUSION

From the above study we can conclude that hypertension is generally associated with depressive and anxiety symptoms. In our study there were 10.3% males and 19.3% females who were hypertensive and had undiagnosed depression.

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