



A STUDY OF MENTAL HEALTH COMORBIDITIES, COGNITION AND QUALITY OF LIFE IN PATIENTS WITH HYPERTENSION.

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ABSTRACT **Aim of the study:** The aim is to assess the prevalence of psychiatric comorbidity and its impact on quality of life in patients with hypertension.

Material and methods: A cross-sectional, observational study was undertaken in the Department of Medicine, tertiary care hospital North India for two months. Data were collected in Medicine outpatient, a case history sheet, and a semi-structured proforma was used to collect the socio-demographic and clinical variables. The diagnosis was made using the International Classification of Disease-10. Subjects were further assessed with MINI VERSION 6.0.0, WHO Quality of Life (WHOQOL-Brief) instrument, and Hindi Mental Status Examination. The analyses of data were done using descriptive statistics.

Results: A total of 70 patients were assessed during the study period. Out of the total number of patients, 58.6% had one or another psychiatric illness which includes 28.6% generalized anxiety disorder, 20% major depressive disorder, 7.1% had panic disorder and 2.9% had bipolar disorder while 41.4% did not have any psychiatric illness.

Conclusion: More than half of patients with hypertension had existing psychiatric comorbidity and psychological impairment. Evaluation of psychiatric symptoms and appropriate management is key for a holistic approach in the treatment plan. This data will help to understand the necessity of psychiatric evaluation of a patient who have chronic medical conditions.

KEYWORDS : Hypertension, mental health comorbidities, Depression, Generalized Anxiety Disorder

INTRODUCTION

Hypertension is a severe, chronic disabling medical condition (*Hypertension*, n.d.) and its leading modifiable risk factor for cardiovascular disorders, premature death, and stroke worldwide (Lim et al., 2012; Mills et al., 2016). Day by day literature is throwing light on its strong bond with various psychiatric illnesses, across the world, which is 30–60% at present (Collazos-Perdomo et al., 2020; Hamam et al., 2020; Kretchy et al., 2014; Rozario & Masho, 2018). It carries a huge burden not only on the patients and the caregivers but also on the health system (Lawes et al., 2006). Sadly, there appears to be a general less or late recognition of, and in some cases poor attention to, the psychiatric element by physicians specifically in such a scenario. This frequently leads to increased severity and clinical deterioration of chronic medical conditions, poor management, and prognosis with eventual high morbidity and mortality rates. Late recognition of psychiatric illnesses in patients with hypertension is linked with poor coping capacity at diagnosis, failure at primary prevention, poor antihypertensive compliance, impairment in quality of life (QOL), greater social burden, overall increases in healthcare costs, and also higher mortality (Ha et al., 2014). Also, psychological stress and lifestyle factors in patients with hypertension are equally related to poor adherence to antihypertensive medications. To further complicate the situation is the concurrent presence of other chronic medical conditions like diabetes mellitus, chronic obstructive pulmonary disorder, obesity, and bronchial asthma with hypertension. These disorders' existence further deteriorates the clinical outcome, increases the complexity of the management of illness. Hypertension can, either independently or in link with other harmful psychosocial and clinical factors, makes favorable soil for the budding of various psychiatric illnesses. On top of this, some of the antihypertensive medications have been linked with innate neuropsychiatric (Kennedy et al., 2016; Testa et al., 1993) complications either as direct side effects, from drug interactions with psychoactive substances, from numerous medications, or with other medications used for the treatment of co-existing comorbid medical conditions.

A precise holistic approach involving assessment, psychotherapy, and treatment of psychiatric disorders in hypertensive patients is the need of the hour. The evaluation of the nature and severity of psychiatric illnesses, the add-on impact on psychological well-being and quality

of life on patients with hypertension is necessary and area of interest of this study.

MATERIALS & METHODS

Study design

This was a cross-sectional, single-center, observational study was undertaken in the tertiary care hospital.

Setting

The study was carried out in the Department of Medicine, tertiary care hospital in North India.

Participants

All the patients visiting the hypertension outpatient services in the Department of Medicine during the study period were included in the study. The study started after the approval of the Institutional Ethical committee. Patients visiting hypertension OPD were invited for participation. Patients fulfilling the inclusion criteria and willing for signing the written informed consent were included in the study. Patients diagnosed with Hypertension according to the International Society of Hypertension, more than 40 years and willing to give consent were included in the study. Patients who refuse to give consent, with a history of substance use except for tobacco, stroke or neurodegenerative disorders, Diabetes Mellitus, thyroid disorders, Retroviral Disease, life-threatening diseases eg. Cancer, and uncooperative patients were excluded from the study.

Variables

A semi-structured proforma was used to assess the socio-demographic variables like age, gender, and locality; clinical variables like diagnosis, total duration of illness, and complications. The diagnosis was made by senior consultants of the Department of Medicine, KGMU according to the modern classification by the WHO/International Society of Hypertension and also graded into mild, moderate, and severe.

Study Tools:

1. Mini Version 6.0.0: Mini International Neuropsychiatric Interview version 6.0.0 is a brief structural diagnostic interview that includes module for 17 major psychiatric disorders. MINI based on Diagnostic and Statistical Manual of Mental Disorders-IV and

International Classification of Diseases-10.(Sheehan et al., 1998) Previous studies reported its validity and reliability for brief interview diagnosis in clinical settings(van Vliet & de Beurs, 2007).

2. WHO Quality of Life (WHOQOL-Brief) instrument: WHO quality of life scale measures the health beyond its traditional indicators such as mortality or morbidity and evaluates the impact of disease and impairment on daily activities and behavior, perceived health status, and disability and/or functional status(*WHOQOL-BREF* | *The World Health Organization*, n.d.). This tool measures four domains namely psychological, physical, social, and environmental factors

3. Hindi Mental Status Examination: Hindi mental status is a screening tool Hindi Mental State Examination (HMSE), specifically designed to overcome educational and language bias when screening illiterate elderly people for cognitive impairment in India. HMSE has a high sensitivity (0.81) and specificity (0.60)(Pandey, n.d.)

Sample Size:

Association between anxiety and hypertension: a systematic review and meta-analysis of epidemiological studies. Yu Pan et al reported an odd ratio is 1.81 so the affect factor will be 0.65 (Pan et al., 2015). Using The Altman nomogram at the power of 80% the sample size is 70(*Figure 8 The Altman Nomogram. The Left-Hand Axis Represents The...*, n.d.).

Statistical Analysis:

Microsoft Excel was used to collect the data and descriptive analysis like frequency and percentages are used to represent the data.

RESULTS:

Sociodemographic characteristics:

The sociodemographic details of 70 participants are depicted in Table-1

Variable	Variable category	Mean or Percentage	Results
Age (years)		50.46±7.67 years	
Gender	Male	78.6%	p<0.0001
Education	Literate	91.4%	
Occupation	Employed	48.6%	
Inhabitant	Urban	65.7%	p<0.0001

The mean age of participants was 50.46 years. Male gender is common who were visiting tertiary care hospital about 78.6%. Interestingly the majority of subjects completed their primary education and residing in an urban area.

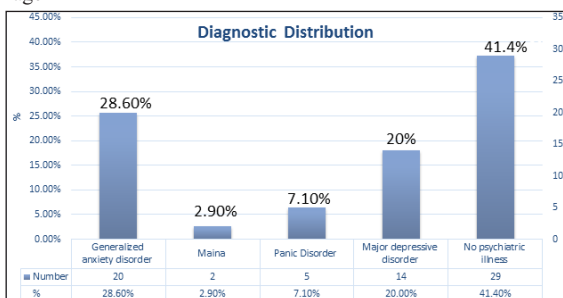
Clinical characteristics:

The clinical variables are mentioned following table-2

Variable	Variable Category	Mean Or Percentage
Duration HTN (Months)		40.37±51.21
Severity of HTN	Mild and moderate	45.7%
Regular medications		98.6%
Uncontrolled HTN		47%

The mean duration of hypertension was 40.37 months and 45.7% of subjects were having mild and moderate grades of hypertension. Surprisingly, 98.6% of subjects were taking regular antihypertensive medications and despite that, 47% of subjects were having uncontrolled hypertension. The percentage of uncontrolled hypertension is higher because it is defined as an average systolic blood pressure ≥140 mmHg and/or an average diastolic blood pressure ≥90 mmHg, in patients with hypertension(*Vital Signs*, n.d.)

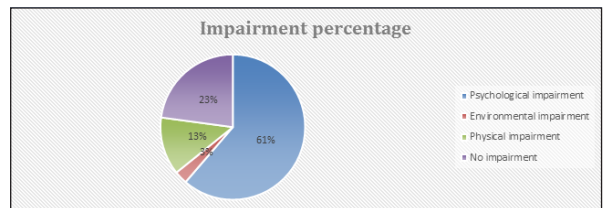
The distribution of psychiatric illness is depicted in the following image



The most common psychiatric illness among patients with hypertension is a generalized anxiety disorder which is about 28.6% followed by major depressive disorder (20%). About 7.10% of subjects fulfilled the criteria for panic disorder and a handful of subjects were having mania(2.90%). While 41.40% of subjects were not having any kind of psychiatric illness.

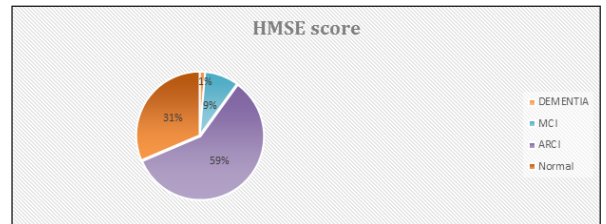
The most predominant domain affected in WHO QOL Brief scale was the psychological domain, about 61%, the psychological distress because of chronic condition could be one of the right explanations. 13% of subjects reported physical impairment followed by 3% of subjects who reported the impairment in the environmental domain, while 23% of subjects did not report any kind of impairment.

Image-2: Impairment distribution according to WHO QOL brief Scale



The cognitive impairment evaluated based on Hindi Mental Status Examination found that 59% of subjects were having age-related cognitive impairment, 9% of subjects were having mild cognitive impairment and only 1% of subjects were having dementia. 31% of subjects were having normal cognition. The spectrum of cognitive impairment is classified based on parallel scores of mini-mental status examination(Reisberg et al., 2010). The Hindi Mental Status Examination score less than 20 is dementia, 20-24 is mild cognitive impairment, 25-29 is age-related cognitive decline and 30 is the maximum and normal score.

Image -3: Cognitive impairment based on Hindi Mental Status Examination score



DISCUSSION:

Our study found that a significant number of patients with hypertension had psychiatric illness, which supports the previous studies(Pan et al., 2015; Ranjan et al., 2020; Rozario & Masho, 2018). The most common psychiatric illness in patients with hypertension is a generalized anxiety disorder. A study reported that anxiety disorders are most prevalent among psychiatric disorders worldwide(*Any Anxiety Disorder*, n.d.; Bandelow & Michaelis, 2015) and ranking as the 6th cause of disability(*Any Anxiety Disorder*, n.d.). Almost similar but higher prevalence of anxiety (38.4%), and depression (60%) has been reported in another study(AIKhathami et al., 2017). Mohammad Shoaib Hamrah et al, stated that a high incidence of anxiety is in inpatients with treatment- resistant hypertension (Hamrah et al., 2018). Literature reports the common link between hypertension and psychiatric illnesses is the sympathetic pathway (Somers et al., 1993; Takahashi, 2008), the hypothalamic-pituitary-adrenal axis (*Hypertension and Hypothalamo-Pituitary-Adrenal Axis Hyperactivity Affect Frontal Lobe Integrity* | *The Journal of Clinical Endocrinology & Metabolism* | *Oxford Academic*, n.d.). Its universally known that stress increases the cortisol level which leads to the accumulation of atherosclerotic plaques in the intima of blood vessels which eventually leads to hypertension(*Guyton and Hall Textbook of Medical Physiology - 14th Edition*, n.d.). The literature showed a link of not only diagnosis of hypertension but also its awareness causes one to be more prone to anxiety and other psychiatric illnesses(Hamer et al., 2010). Khatib et al reported that anxiety, depression, and stress are the most common obstacles while dealing with lifestyle modifications in patients with hypertension(Khatib et al., 2014). Our study reported more than half of patients(59%), had age related cognitive impairment. M. F Elias et al stated the positive association between hypertension

and cognitive impairment (Elias et al., 1993). So, a collaboration of physicians, physiatrists, and psychologists while treating patients with hypertension is the need of the hour.

Limitations:

First, small sample size so the results cannot be generalized. Second, it's a cross-sectional study, hence the long-term course of psychiatric illness cannot be illustrated, particularly for cognitive impairment.

CONCLUSION:

More than half patients with hypertension had existing psychiatric comorbidity and psychological impairment. Evaluation of psychiatric symptoms and appropriate management is a cornerstone for a holistic approach in the treatment plan. This data will help to understand the necessity of psychiatric evaluation of a patient who have chronic medical conditions

Financial support and sponsorship- Nil

Conflicts of interest- There are no conflicts of interest

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