

Prevalence, co morbidity and treatment protocols of hypertensive patients in a tertiary care university teaching hospital of Karachi, Pakistan

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ABSTRACT

Objective

To document medical information of hypertensive patients in a tertiary care university teaching hospital in Karachi, Pakistan.

Methods

A quantitative cross sectional study was conducted in a tertiary care university teaching hospital. All patients visiting the hospital were included in the study and rest of the population was excluded. The research instrument consisted of survey questionnaire.

Results

The survey incorporated a total of 201 patients in the tertiary care university teaching hospital. The prevalence of hypertension HTN was found to be 40.3% (33.46% – 47.43% for 95% confidence interval). Of the total 78 patients with HTN diagnosed, 63 patients reported co morbidities and the results were dominated by diabetes mellitus DM (N = 19, 24.3%) and ischemic heart disease IHD (N = 7, 8.9%) and combined co morbidity (N = 13, 16.6%) of both.

Conclusion

The prevalence of hypertension HTN is quite high and majority of the patients are geriatric, presence of diabetes mellitus DM as co morbidity is very common.

Keywords

Hypertension; diabetes mellitus; Karachi; Pakistan; tertiary care; hospitals; prevalence

1. INTRODUCTION

Hypertension HTN is simply defined as the elevation in systolic blood pressure in resting condition. The condition results in continuous elevation of blood pressure even during rest thereby making the individual hypertensive. The incidence increases with age and it is quite common in developing countries. (Hania Fawad et al. 2014)

HTN brings complications of cardiovascular accidents. Continuous elevation in BP results in cardiac remodeling and hence increases likelihood of suffering from CVA such as myocardial infarction MI. The disease is associated with diabetes mellitus DM for most part and studies have confirmed this association. (Hania Fawad et al. 2014)

The aim of our study is to find out prevalence of hypertension which is done in a tertiary care hospital in Karachi. Data was collected from different wards of hospital, from which the proportion of disease affected people was taken.

2. METHODS

A quantitative cross sectional study was conducted in a tertiary care university teaching hospital for 3 consecutive weeks aimed at finding patients with hypertension and estimating its prevalence and complications in the population. All patients visiting the hospital were included in the study and rest of the population was excluded. The research instrument consisted of survey questionnaire validated by an expert prior to study commencement. Before collecting the data, the patients were briefed about the study and its objective. The data thus gathered was analyzed in SPSS v 20 (Statistical Package for Social Sciences version 20) and expressed as sample (N) and percentage (%) in the results. Epidemiological data was calculated by Medcalc® and expressed as prevalence (95% confidence intervals) and chi square χ^2 associations as (P-value). Statistical significance was accepted at P-values less than 0.05. The study was ethically approved by the concerned authorities.

2. RESULTS

The survey incorporated a total of 201 patients in the tertiary care university teaching hospital. The prevalence of hypertension HTN was found to be 40.3% (33.46% – 47.43% for 95% confidence interval). The study reported majority of the patients to be above the age of 45 years (N = 111, 55.2%) followed by the age group of 26-45 year patients (N = 53, 26.4%) and some in the range of 18-25 years (N = 37, 18.4%). In terms of gender almost equal number of patients were observed with numbers slightly tilted in favour of females (N = 101, 50.2%) than males (N = 100, 49.8%). Majority were not reported to be diagnosed with hypertension HTN (N = 123, 61.2%) however, almost a fourth of total patients surveyed had HTN (N = 78, 38.8%).

The blood pressure BP data of the patients thus recorded showed that almost a quarter of the total patients had a normal BP in range of 120/80 mm of Hg and Hypotensive BP below 120/80 mm of Hg (N = 52, 25.9%). Slightly less than a quarter had stage I HTN 159/99 mm of Hg (N = 44, 21.9%) and pre hypertension 139/89 mm of Hg (N = 43, 21.4%). The patient pool was distributed in different wards of the health care facility with major chunk in the general ward (N = 33, 16.4%). The summary of the results is tabulated in table 1.

Table 1 Summary of demographic information

S.No	Attributes	Sample (N)	Percentage (%)
1	Age		
1.1	18-25 years	37	18.4
1.2	26-45 years	53	26.4
1.3	Above 45 years	111	55.2
1.4	Total	201	100
2	Gender		
2.1	Male	100	49.8
2.2	Female	101	50.2
2.3	Total	201	100
3	HTN diagnosed		
3.1	Yes	78	38.8
3.2	No	123	61.2
3.3	Total	201	100
4	Blood Pressure BP		
4.1	120/80 mm of Hg (Normal)	52	25.9
4.2	139/89 mm of Hg (Pre hypertension)	43	21.4
4.3	159/99 mm of Hg (Stage 1 HTN)	44	21.9

4.4	160/100 mm of Hg (Stage 2 HTN)	6	3
4.5	Above 160/100 mm of Hg (Resistant HTN)	4	2
4.6	Less than 120/80 mm of Hg (Hypotension)	52	25.9
4.7	Total	201	100
5	Location of patient		
5.1	General ward	33	16.4
5.2	Surgical ward	32	15.9
5.3	Gastro intestinal ward	28	13.9
5.4	Cardio ward	23	11.4
5.5	Neuro ward	12	6
5.6	Gynea ward	29	14.4
5.7	Private	31	15.4
5.8	Semi Private	9	4.5
5.9	Dialysis unit	4	2
5.10	Total	201	100

Regarding the co morbidities, of the total 78 patients with HTN diagnosed, 63 patients reported a number of associated ailments however, the results were dominated by presence of diabetes mellitus DM (N = 19, 24.3%) and ischemic heart disease IHD (N = 7, 8.9%) along with their combined co morbidity (N = 13, 16.6%). A considerable number of patients (N = 15, 19.2%) reported no associated co morbid condition. The results are expressed in table 2.

Table 2 Summary of co morbidities of patients

S.No	Attributes	Sample (N)	Percentage (%)
1	Co morbidities		
1.1	None	15	19.2
1.2	Diabetes Mellitus DM	19	24.3
1.3	Ischemic Heart Disease IHD	7	8.9
1.4	DM + IHD	13	16.6
1.5	Chronic kidney disease CKD + DM	2	2.5
1.6	Epilepsy + DM	1	1.2
1.7	IHD + Kidney stone	1	1.2
1.8	Tuberculosis TB	1	1.2
1.9	Arthritis	2	2.5
1.10	Occipito-cervical fusion	1	1.2
1.11	Stroke + DM	1	1.2
1.12	GI bleeding	1	1.2
1.13	Urinary Tract Infection UTI + DM	1	1.2
1.14	Stroke + Piles	1	1.2
1.15	Angina Pectoris + IHD	1	1.2
1.16	Dementia + COPD	1	1.2
1.17	DM + IHD + CKD	1	1.2
1.18	DM + Rheumatoid Arthritis RA	2	2.5
1.19	DM + Asthma	1	1.2
1.20	DM + IHD + Angina Pectoris	1	1.2
1.21	Chronic inflammatory demyelinating polyneuropathy	1	1.2
1.22	UTI	1	1.2
1.23	Hyperthyroidism + hypercholesterolemia	1	1.2
1.24	Pregnancy	1	1.2
1.25	Dementia	1	1.2
1.26	Total	78	100

Regarding the treatment profile of the patients diagnosed with HTN (N = 78, 100%), majority of the patients were reported to be on combination therapy (N = 22, 28.2%) followed by β blockers alone (N = 11, 14.1%). Very few patients (N = 2, 2.5%) were not given any treatment. The summary of treatment profile is tabulated in table 3.

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Table 3 Summary of treatment profile of patients

S.No	Attributes	Sample (N)	Percentage (%)
1	Treatment options		
1.1	No treatment	2	2.5
2	ACEIs		
2.1	Lisinopril	2	2.5
3	ARBs		
3.1	Valsartan	1	1.2
3.2	Losartan	2	2.5
3.3	Olmesartan	1	1.2
4	β blockers		
4.1	Propranolol	2	2.5
4.2	Labetalol	1	1.2
4.3	Carvedilol	1	1.2
4.4	Atenolol	5	6.4
4.5	Bisoprolol	2	2.5
5	Ca²⁺ Blockers		
5.1	Amlodipine	3	3.8
6	Diuretics		
6.1	Furosemide	5	6.4
7	Combination therapy		
7.1	Irbesartan + Hydrochlorothiazide	1	1.2
7.2	Atenolol + Losartan	1	1.2
7.3	Losartan + Hydrochlorothiazide	4	5.0
7.4	Furosemide + Verapamil	1	1.2
7.5	Atenolol + Lisinopril	1	1.2
7.6	Hydrochlorothiazide + Lisinopril	1	1.2
7.7	Furosemide + Amlodipine	2	2.5
7.8	Losartan + Amlodipine	2	2.5
7.9	Atenolol + Nifedipine	1	1.2
7.10	Furosemide + Amiloride HCl	5	6.4
7.11	Furosemide + Atenolol	3	3.8
8	Miscellaneous		
8.1	Nitroglycerin	1	1.2
9	Total	78	100

The variable of age was also tested for association with diagnosis of HTN and was found to be statistically associated (P value<0.01) as it was evident that HTN is more prevalent in the geriatrics as compared to any other age group. Figure 1 depicts the observed and expected counts of the association as calculated by chi square X^2 test.

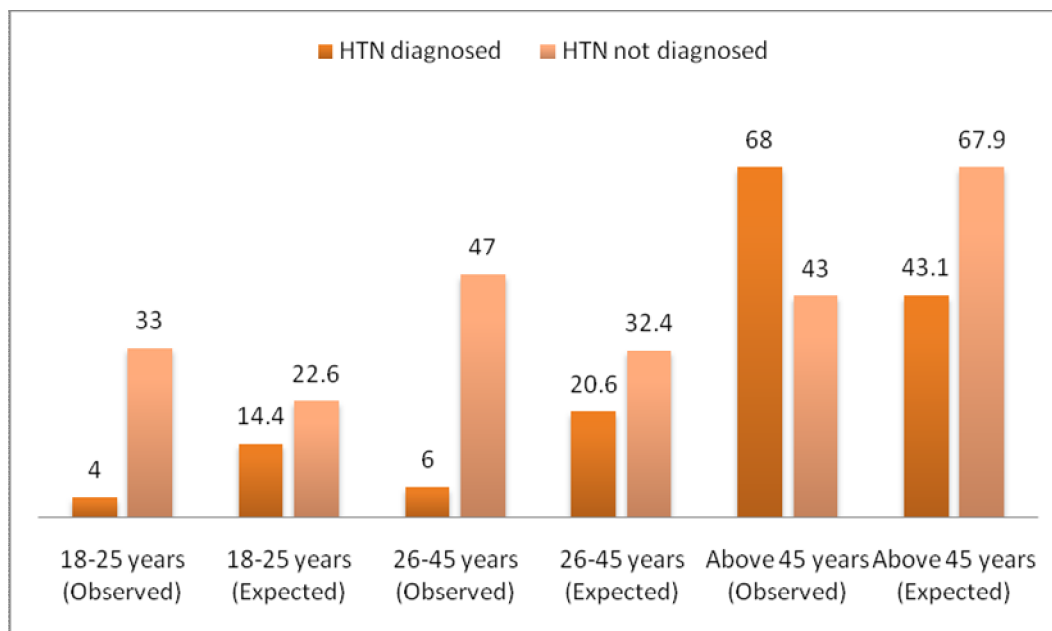


Figure 1 Observed and expected counts of the association of age and HTN diagnosis

3. DISCUSSION

Hypertension HTN is becoming a cause of concern in the health care system of Pakistan. (Hania Fawad et al, 2014) The objective of the study was to document the prevalence, co morbidities and treatment protocols of patients suffering from HTN in a tertiary care university teaching hospital of Karachi, Pakistan. The study incorporated 201 patients out of which majority were geriatrics above the age of 45 years (N = 111, 55.2%) and almost equal number of females (N = 101, 50.2%) and males (N = 100, 49.8%). A fourth of the total patients surveyed reported HTN and prevalence was found to be 40.3% (33.46% – 47.43% for 95% confidence interval). This is a common scenario in Pakistan as majority of the patients suffering from chronic illnesses are geriatric.

Majority of the patients had co morbidity of DM (N = 19, 24.3%) and ischemic heart disease IHD (N = 7, 8.9%) along with their combined co morbidity (N = 13, 16.6%). The results encore the findings of other studies which rank Pakistan at the 7th spot in the world in terms of DM burden. (The Nation, 2008)

In addition, a number of studies report the association of DM with macro vascular and micro vascular complications. (Atta Abbas 2013, Hania Fawad et al. 2014 and Mehwish Rizvi et al. 2014) With regards to the treatment of HTN, majority of the patients were reported to be on combination therapy (N = 22, 28.2%) which is quite obvious as the patient suffered from DM as a major comorbidity, addition in the pharmacotherapy of HTN with respect to the comorbidity is common and rational.

4. CONCLUSION

The prevalence of hypertension HTN is quite high and majority of the patients are geriatric, presence of diabetes mellitus DM as co morbidity is very common which brings an added disease burden and increases the likelihood of further health deterioration.

CONFLICT OF INTEREST

The team of authors declare no conflict of interests exists.

STATEMENT OF CONSENT

An ethical approval was obtained from the health care facility before conducting the study.

Supporting information

This article is based on a research project undertaken as an assessment of Clinical Pharmacy I as a part of EBI Initiative plan in 4th Professional of Doctor of Pharmacy (Pharm.D) degree at Faculty of Pharmacy, Ziauddin University, Pakistan. (Abbas A, 2014) Rizwana Rehmat, Lareb Mir, Maryam Ahsan, Sadia Iqbal Panjwani, Aiza Sabir are undergraduate students of Doctor of Pharmacy (Pharm.D) Batch 7 at Faculty of Pharmacy, Ziauddin University, Pakistan. Atta Abbas is Advisory Board Member at Department of Pharmacy, Clifton Hospital. He is also an Assistant Professor and Academic Researcher at the Department of Pharmacy Practice, Faculty of Pharmacy, Ziauddin University, Pakistan and a member of the Royal Pharmaceutical Society of Great Britain, United Kingdom. He has authored and co-authored a number of research publications and a book. His research work has appeared in leading scientific journals of the world including Discovery Publications.

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