TO STUDY THE PREVALENCE OF HYPERTENSION IN THE ADULT POPULATION OF AGE 30 TO ABOVE 50 YEARS IN 100 HOUSEHOLDS OF URBAN AREAS OF PESHAWAR

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ABSTRACT

Background: Blood pressure is the force of blood against the artery walls[6]. It is often written or stated as two numbers. The first or top number represents the pressure when the heart contracts. This is called systolic pressure. The second or bottom number represents the pressure when the heart rests between beats. This is called diastolic pressure. Blood pressure normally rises and falls throughout the day. When it consistently stays too high for too long, it is called hypertension.

Objectives: To assess the prevalence of hypertension in 100 urban households of Peshawar in relation to the age, sex, profession, family history and most widely used drug for hypertension.

Material and Methods:

Study design:

Observational study

Setting: Five urban areas of the District of Peshawar i.e. University Town, Shami Road, City Area, Peshawar University Campus and Hayatabad.

Subjects & Method: A convenient sample of 100 urban dwellers of District Peshawar was selected from 5 urban areas. They were interviewed using a Questionnaire containing both open-ended and close-ended questions.

Results: Out of the 100 subjects 94 were hypertensive, 67(71%) were females and the rest 27(29%) were males, 64(68%) of the hypertensive had a family history of hypertension. Hypertension was more prevalent in people in the age group of above 50 i.e. 67(71%). It was also observed that 40(43%) of the hypertensive were unemployed. The study also showed that 30(32%) of the hypertensive used ACE inhibitors whereas 24(26%) used beta blockers, hence making these two drugs the most widely used drugs for hypertension.

Conclusion: Hypertension seems to be more prevalent in people with familial history of hypertension, who are unemployed, in females and in higher age groups. The most widely used drugs for hypertension in urban dwellers of Peshawar are ACE inhibitors and Beta blockers.

Key words: Hypertension, Age, Sex, Family history, Profession, Drugs.

INTRODUCTION

Blood pressure is the force of blood against the artery walls[6]. It is often written or stated as two numbers. The first or top number represents the pressure when the heart contracts. This is called systolic pressure. The second or bottom number represents the pressure when the heart rests between beats. This is called diastolic pressure. Blood pressure normally rises and falls throughout the day. When it consistently stays too high for too long, it is called hypertension.

Pakistan Medical Research Council (PMRC), conducted a survey in the entire country in 2002, they reported that 17.9% of the population above the age of 14 suffer from hypertension while one in three persons above the age of 45 suffer from hypertension. These findings were similar to those reported by the national health survey of Pakistan (NHSP) conducted in 1990 – 94. They also reported that less than 3% had their blood pressure controlled[2].

The National Task Force (NTF-1) on hypertension in Pakistan in 1998 reported that more than 60% of Pakistani patients are not aware that they are suffering from hypertension[3].

Jiang He MD and his colleagues at Louisiana estimated the overall prevalence and absolute burden

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of hypertension in 2000 and used this to predict the future global burden[4]. They estimated that by 2025, the number of adults with hypertension will increase by about 60% to a total of 1.56 billion.

A World Bank study was conducted in 7 world regions including countries of Europe, Latin America, Caribbean, China, India, the Middle East Crescent, Asia and Sub-Saharan Africa[5]. This study showed that 26.4% of the world's adult population in 2000 had hypertension. This meant that an estimated 972 million adults, of which 333 million resided in developed countries and 639 million resided in developing countries (1:2) were hypertensive. In men, prevalence of hypertension was highest in the Latin American and Caribbean region, whereas in women it was highest in the "former socialist countries" of Europe. The lowest prevalence for both men and women was in the Asian Regions.

CLASSIFICATION

There are several classifications criteria's for hypertension, some of which are as follows:

(A) The Seventh Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure defines hypertension as follows:

HYPERTENSION

Hypertension for adults is defined as a systolic blood pressure of 140 mmHg or higher or a diastolic blood pressure of 90 mmHg or higher.

NORMOTENSION

Normal blood pressure is a systolic blood pressure of less than 120 mmHg and a diastolic blood pressure of less than 80 mmHg.

PRE-HYPERTENSION

Pre-hypertension is defined as a systolic blood pressure of 120–139 mmHg or a diastolic blood pressure of 80–89 mmHg. Persons with pre-hypertension are at increased risk to progress to hypertension.

(B) WHO- EMRO (96)[7]

- I - Hypertension with no risk factors and no organ damage.

- II - Hypertension with risk factors alone.

- III -Hypertension with organ damage.

- IV -Hypertension with risk factors and organ damage.

(C) The sixth report of Prevention, Detection, Evaluation and Treatment – (USA 97)[8] defines hypertension in the following Systolic (mmHg) and Diastolic (mmHg) pressures:

{Systolic (mmHg) / diastolic (mmHg)}

- Stage 1   140-159 / 90-99
- Stage 2   160-179 / 100-109
- Stage 3   >180 / >110

Treatment of hypertension:

There are several types of medications that ar used to treat high blood pressure, frequently; mor than one type will be used[8]. It is important to take thes as prescribed. High blood pressure medicines fall int one of these types:

- **Diuretics** work in the kidney and flush exces water and sodium from the body. They ar sometimes called "water pills."

- **Beta–blockers** reduce nerve impulses to th heart and blood vessels that make the hear beat slower and with less force.

- **Angiotensin–converting enzyme (ACE inhibitors** cause the blood vessels to rela> ACE inhibitors prevent the formation of a hor mone called angiotensin II, which normall causes the blood vessels to narrow.

- **Angiotensin antagonists** shield the bloo vessels from angiotensin II. As a result, th vessels become wider.

- **Calcium channel blockers** prevent calciun from entering the muscle cells of the hear and blood vessels. This causes the bloo vessels to relax.

  Alpha–blockers reduce nerve impulses to th blood vessels, which allow the blood to pas more easily.

- **Alpha–beta–blockers** work the same way a: alpha-blockers but also slow the heartbeat as beta–blockers do. As a result, less bloo is pumped through the vessels.

- **Nervous system inhibitors** relax blood ves sels by controlling nerve impulses. Thi: causes the blood vessels to become wider.

- **Vasodilators** directly open the blood vessel: by relaxing the muscle in the vessel walls.

According to a study conducted in Bulgaria ir 2003, the drugs most widely prescribed by genera physicians were ACE inhibitors and beta blockers[9].

Risk Factors

Various risk factors leading to hypertension have been identified some of them are as follows:

(1) Age

According to a study done by Anderson GH e all in 1999 increased age is associated with a signifi

cant increase in the prevalence of hypertension[10]. The risk being most especially for people aged above 60 years.

(2) Profession

Professor T. Lang and his colleagues did a case study on a French working population from which it was apparent that jobs of different workloads especially stressful jobs had a strong relation with the prevalence of hypertension in both men and women although more so in women[11].

(3) Family History

Rebbeck. T.R et al performed a study to determine the weather paternal and maternal history of hypertension contributes to the probability of an individual having hypertension, the results indicated that both men and women were more prone to hypertension if they had a family history of hypertension whether maternal or paternal[12]. Men being effected slightly more than women.

(4) Gender

A research done at the University of California in 2006 indicated that gender was a major contributor to the probability of an individual suffering from hypertension[13]. The study showed that the influence of genes on blood pressure may vary based on gender.

(5) Locality

The National Health Survey of Pakistan (NHSP) from 1990 – 1994 conducted a cross-sectional study from which it was apparent that hypertension was more prevalent in urban (22.7%) versus rural dwellers (18.1%)[2]

(6) Ethnicity

A study done by NHSP in 1990-1994, indicated ethnic subgroup differences in hypertension in Pakistan[14]. Showing that in the four major subgroups Baluchis were most effected and Punjabis and Sindhis being least effected.

MATERIAL AND METHODS

This is a descriptive study. Informed Consent is taken from each subject prior to the interview. The interview was conducted using a Questionnaire containing open-ended and close-ended questions. All the data obtained from the subjects was confidential. In each of the 5 areas selected Questionnaires were allocated to 20 people. 2 to 3 girls were sent to carry out the task in each of the above mentioned areas. Particular streets and sectors in these areas were chosen to our convenience.

Sample Size: 100 households selected on the basis of inclusion and exclusion criteria.

People in the age groups of 30 and above 50, residents of urban areas of Peshawar were included while People aged less than 30 years and living in rural areas of Peshawar were excluded.

Once the questionnaires are filled, the data is analyzed and summarized in graphs. Inferences and conclusions are made from the graphical data. Some of the data is also presented in the descriptive form. The data is organized and tabulated using Microsoft Word and Microsoft Excel 2003.

The areas chosen for the study are Hayatabad, Inner City Area, University Town, Shami Road and Peshawar University Campus. These areas are chosen because they fall under the urban areas of Peshawar.

RESULTS

The study population consisted of 100 urban dwellers of Peshawar. Out of the 100 people 94 were hypertensive and the remaining 6 were non-hypertensive.

Out of the 94 people interviewed 67(71%) of the hypertensive were above 50, 25(26%) were in the age group of above 40 and 2(2%) were of 30 years of age. Sex distribution showed that out of the 94 hypertensive 67(71%) were females and 27(29%) were males.

The distribution by profession and employment showed that out of 94 hypertensive, 40(43%) were unemployed, 18 (19%) were professors, 17(18%) were from other government services, 10(11%) were businessman, 6(6%) were doctors and the remaining 3(3%) were from other miscellaneous professions.

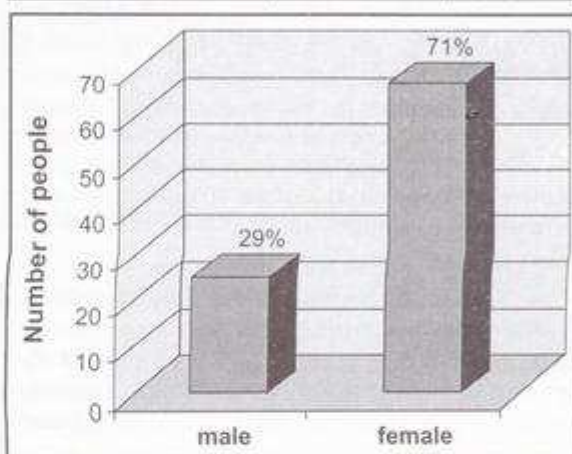Table No 1: Number of Hypertensives and Non- Hypertensives

Total number of people	100
Hypertensives	94
Non-hypertensives	6
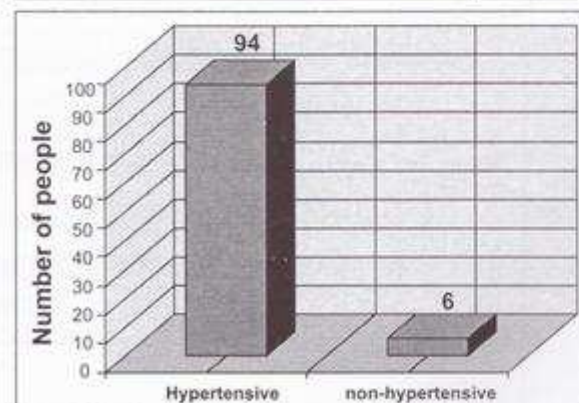
Graph No 1: Number of Hypertensives and Non-hypertensives
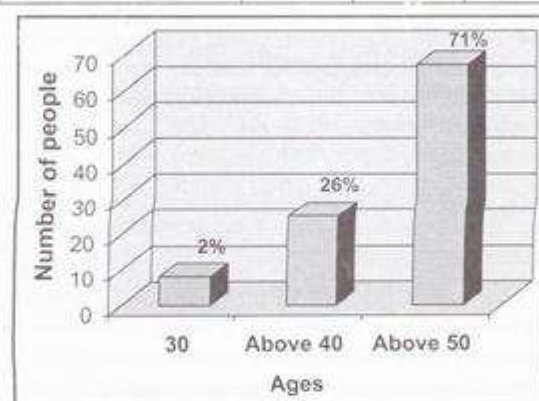
Table No 2: Sex Distribution among Hypertensives

Area	Female (N)	Male (N)
Shammi Road	13	5
Town	15	3
University Campus	11	8
City Area	16	3
Hayatabad	12	8
Total	67	27

Table No 3: Age Distribution amongst Hypertensives

AREA	30 (N)	Above 40 (N)	Above 50(N)
Shammi Road	1	4	13
Town	0	5	13
University Campus	0	7	12
City Area	0	2	17
Hayatabad	1	7	12
TOTAL	2	25	67

Graph No 2: Sex Distribution among Hypertensives

Graph No 3: Age Distribution among Hypertensives

Table No. 4: Distribution of Hypertension by Profession and Unemployment

| AREA	Doctors (N)	Professors (N)	Businessmen (N)	Other Gov. services (N)	Misc.(N)	Unemployed/ retd (N)
Shammi Road	2	4	0	3	1	10
Town	1	1	4	3	1	1
University Campus	1	12	2	4	1	6
City Area	0	1	2	4	0	4
Hayatabad	2	0	2	3	0	19
Total	6	18	10	17	3	40
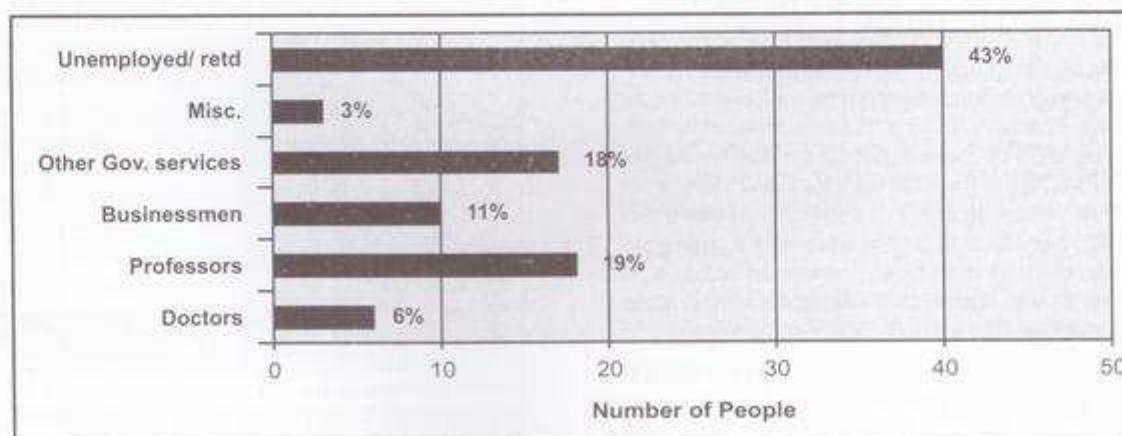
Graph No 4: Distribution of Hypertension by Profession

Table No 5: Family History of Hypertension

Area	Yes(n)	No(n)	Don't know(n)
Shammi Road	13	5	0
Town	11	9	0
University Campus	15	4	1
City Area	13	4	0
Hayatabad	12	5	2
Total	64	27	3
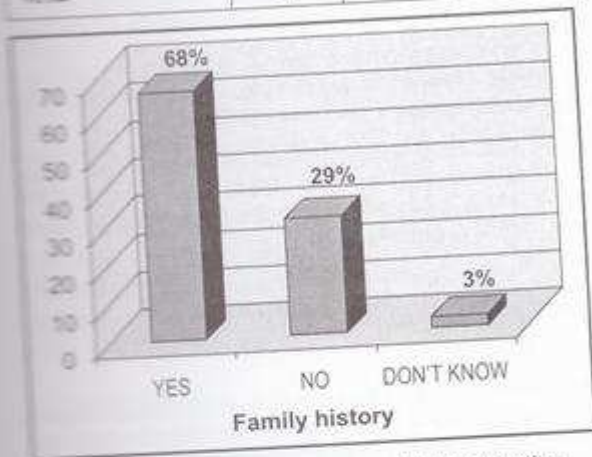
Graph No 5: Family History of Hypertension

The most commonly used drugs were ACE inhibitors and Beta blockers. Of the 94 hypertensive, 30 (32%) used ACE inhibitors, 24(26%) used beta blockers, 20(21%) used calcium channel blockers, 11(12%) used diuretics, 6(6%) used centrally acting drugs, 3(3%) direct vasodilators and none used ganglion blockers.
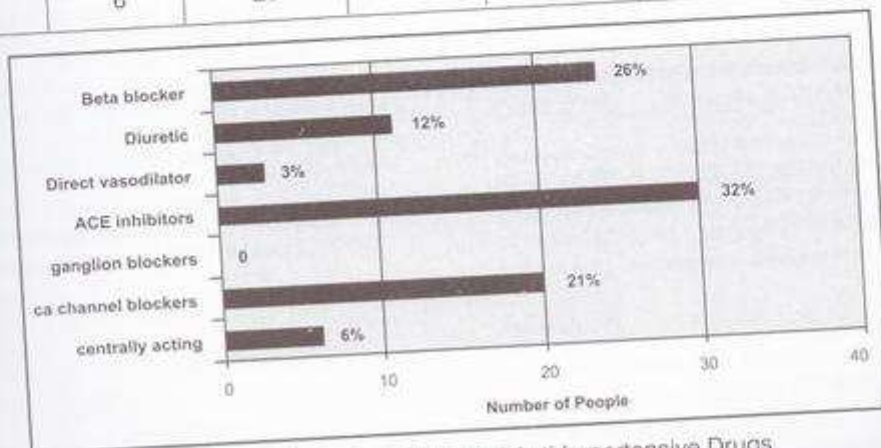
Sixty-four (68%) of the hypertensive reported a family history of hypertension, 27(29%) had no family history of hypertension and 3(3%) did not know if there was any such history in their family.

DISCUSSION

Our small study confirmed findings of previous studies carried out on hypertension. A study done by Anderson GH et al in 1999 showed that increased age is associated with significant increase in the prevalence of hypertension[10]. However a study conducted by Robert W Schrier from university of Colorado school of medicine in 2003, to examine the role of hypertension in offspring's with autosomal dominant polycystic kidney disease (ADPKD), the effects of hypertension in the affected parent, on hypertension in the ADPKD offspring were independent of age, which is contrary to our finding[15]. Our study indicated that hypertension is more common in people above 50 years of age.

Table No 6: Most commonly used Anti-hypertensive drugs

AREA	centrally acting (N)	ca channel blockers (N)	ganglion blockers (N)	ACE inhibitors (N)	Direct vasodilator (N)	Diuretic	Beta blocker
Shammi Road	0	9	0	6	0	4	7
Town	1	2	0	8	1	3	7
University Campus	0	2	0	6	0	0	5
City	5	6	0	7	1	3	3
Hayatabad	0	1	0	3	1	1	2
Total	6	20	0	30	3	11	24

Graph No 6: Most commonly used Anti-hypertensive Drugs

In another study carried out by T Lang and his colleagues on a French working population made it apparent that stressful jobs play a role in prevalence of hypertension in both men and women[11] .Occupational stress has been implicated as an independent risk factor in the etiology of coronary heart disease and increased hypertensive risk in a number of occupations. Research by Daryl B O'connor in 2000 showed that higher levels of self reported occupational stress are predictive of greater blood pressure[16]. Our study also had the same findings showing that unemployed people and those having stressful jobs are more prone to hypertension.

Rebbeck T.R et al performed a study to determine whether family history played any role in the development of hypertension; it was found that both men and women were more prone to hypertension if they had a family history of hypertension whether maternal or paternal[12]. Females are more likely to suffer from hypertension as compared to males[13]. Our study also confirmed these findings.

The most commonly used drugs in the treatment of hypertension are ACE inhibitors and beta blockers, a study were conducted in Bulgaria in June 2003 also gave the same results[9].

Limitations of our study were that our sample was small and not random. We limited our study to urban areas for safety and security purposes.

CONCLUSION & RECOMMENDATIONS

Optimum management of blood pressure requires awareness. People should be educated regarding hypertension and its complications. Several screening programs should be implemented in the community. People should undertake lifestyle changes such as regular exercise reduce weight, decrease salt and alcohol intake and should regularly record blood pressure. If any irregularity is observed in the blood pressure, a medical specialist should be consulted as soon as possible. Hypertensive people should keep emergency anti-hypertensive medication at home.

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