



PREVALENCE OF HYPERTENSION AMONG PATIENTS UNDERGOING SURGICAL PROCEDURES IN SIR GANGA RAM HOSPITAL, LAHORE

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ABSTRACT:

Hypertension is a frequent preoperative abnormality found in patients undergoing general surgery and may be associated with cardiovascular adverse events in the perioperative period.

OBJECTIVES: To find out prevalence and severity of hypertension preoperatively among patients presenting for general surgery.

PATIENTS AND METHODS: All patients undergoing general surgery at Sir Ganga Ram hospital Lahore were included in the study. History of preexisting hypertension was sought from all patients. All adult male and female patients with age between 20-100 were included in the study. Two blood pressure measurements were taken from all patients at rest, the first reading in the ward and the second one in the operating room. The patients were categorized according to AHA criteria for blood pressure.

RESULTS: The study comprised 638 patients (245 males and 393 females). Ninety-Four patients (25 males, 69 females) were found to be hypertensive (15%). 36 had stage-1, 44 had stage-2 and 14 had severe hypertension. 75 hypertensive patients were already known cases, while 19 patients were discovered to be hypertensive during the study.

CONCLUSIONS: Overall frequency of hypertension among adult patients undergoing surgery at Sir Ganga Ram Hospital, Lahore is 15 percent. Stage-2 hypertension was most commonly observed in this group of patients.

KEYWORDS: Prevalence, Hypertension, Surgical Patients (J Cardiovasc Dis 2014;12(1):1-4)

INTRODUCTION:

Hypertension is the commonest cardiovascular disorder in the developed countries. It is a leading cause of death and disability in most Western societies. Comparative Risk Assessment Collaborate Group has identified hypertension as one of the leading global risk factors for morbidity¹. It is most important modifiable risk factor for cerebrovascular, cardiovascular and renal diseases. Even in Pakistan, according to National Health Survey of Pakistan, prevalence of hypertension is 18 percent². In another survey, prevalence of hypertension has been reported as 25 percent in Pakistan³. It is the most prevalent pre-operative medical abnormality in surgical patients, with an overall prevalence of 20-25%⁴.

Hypertension is the commonest cause of postponement of surgical procedure on the day of scheduled surgery^{5,6,7}. Preoperative hypertension is generally associated with a small increase in perioperative cardiovascular complications⁸.

However, uncontrolled severe hypertension is associated with high rate of postoperative complications like intracranial bleed⁹. Hypertensive patients with a good control are still at risk of rise in blood pressure in preoperative period. Patients with hypertension are at higher risk for labile blood pressure and for hypertensive emergencies during surgery. More than 10 percent well controlled hypertensive patients may have preoperative elevation of blood pressure¹⁰. Even mild hypertensive patients are not without risk.

Blood pressure determination is the most important part of pre-operative evaluation. Significant number of individuals with hypertension are unaware of their condition and among those with diagnosed hypertension, treatment is frequently inadequate. It is frequently detected among patients undergoing pre-operative evaluation for surgical procedures. Majority of elective surgical patients have only had single blood pressure determination made prior to arrival in the operation room. If no proper sedation as pre medication given, there is difference between blood pressure reading of pre-operative evaluation done night before surgery and blood pressure value taken just before or at the time of induction.

At time of induction severe hypotension oc-

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curs, which could be sometimes dangerous and then after surgical stimulus, severe hypertension occurs which sometimes remain static despite anti-hypertensive medication. Even if patient's blood pressure remains controlled during the procedure, hypertensive episode can occur again at the time of extubation.

AIMS AND OBJECTIVES:

To determine the frequency and severity of hypertension in patients coming to anesthesia department for surgery at Sir Ganga Ram Hospital, Lahore.

PATIENTS AND METHODS:

This study was conducted between January 2013 to April 2013 in Department of Anesthesiology, Sir Ganga Ram Hospital Lahore. Sir Ganga Ram Hospital is tertiary care teaching hospital affiliated with Fatima Jinnah Medical College, Lahore. This cross sectional observational study was carried out among patients undergoing various elective procedures under general anesthesia and subarachnoid spinal block. An approval from hospital ethical committee was obtained.

Both male and female patients between 20 and 100 years were included in the study. The patients were examined pre-operatively. Blood pressure was measured day before surgery in the evening with the use of sphygmomanometer. All the readings were made while patients at rest. All cases with known and undiagnosed hypertension were included in the study.

The patients' hypertension was categorized according to the grading scale of American Society of Hypertension, International Society of Hypertension Guidelines and 2013 ESH/ESC Practice Guidelines for the Management of Arterial Hypertension (table 1). The patients were also asked about the use of regular medication in known cases of hypertension. Statistical analysis of data was done by using statistical package for social science. (SPSS-16).

RESULTS:

The study population was comprised of 638 patients (245 males, 393 females) (Figure 1, Table 2). The age range was 20 to 83 years (mean 38). Out

Table 1: Classification of Hypertension^{11,12}

Category of Blood Pressure	Systolic Blood Pressure (mmHg)	Diastolic Blood Pressure (mmHg)
Normal	<120	<80
Prehypertension	120-139	80-89
Stage I Hypertension	140-159	90-99
Stage II Hypertension	160-179	100-109
Severe Hypertension	>180	>110

of 638 patients, 94(15%) patients were found to be hypertensive (25 males, 69 females) (Figure 2). Prevalence of hypertension was 25/245 (10.2%) among male patients while it was 69/393 (17.56%) in female patients. Out of 94 hypertensive patients, 62 were already known cases and receiving treatment for that. Another 13 patients were also known cases of hypertension but not taking any treatment for that. Nineteen patients were found to be hypertensive for the first time (Figure 3, Table 3). Hypertensive patients were receiving angiotensin

Table 2: Frequency of patients coming for surgery regarding sex, age and hypertension.

Variables		Frequency(%)
Gender	Male	245(38.4%)
	Female	393(61.6%)
Age		38±3.55
Hypertension		94(15%)

Table 3: Frequency of hypertensive patients coming for surgery regarding sex, treatment and antihypertensive agent

Variables		Hypertension patients
Gender	Male	25(26.59%)
	Female	69(73.41%)
Diagnosis	on treatment	62
	Not taking medicine	13
	Undiagnosed	19
Medicine	ACE Inhibitor	34
	Beta bloklers	24
	Calcium Channel Bloklers	14
	ARBs	5
	Not treatment	13

converting enzyme (ACE) inhibitors, beta-blockers, calcium channel blockers, angiotensin receptor blockers (ARBs) or no treatment for hypertension (Figure 4). 73% belonged to systolic hypertension and 70% belonged to diastolic hypertension of stage-I and Stage – II combined. Out of stage-I and Stage- II hypertension, Stage II hypertension is more common than Stage-I. Stage-I hypertension was seen in 36 patients, stage-II in 44 and severe Hypertension in 14 patients (figure 5)

DISCUSSION:

The presence of stage-I and stage-II preop-

Figure 1: Sex distribution in the study.

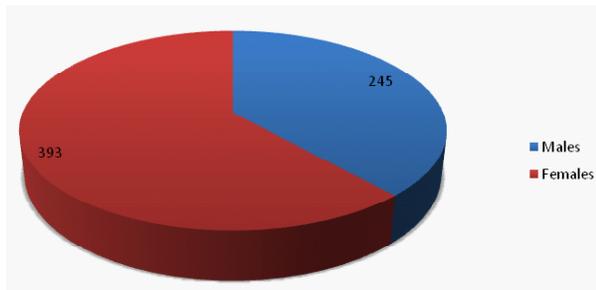


Figure 2. Hypertension among males and females

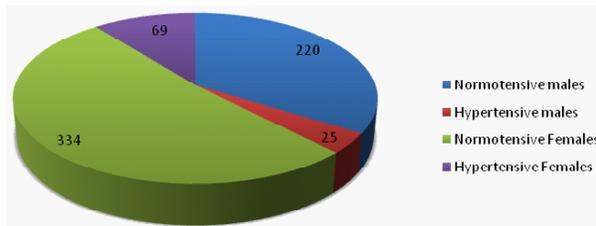


Figure 3. Distribution of hypertensive patients

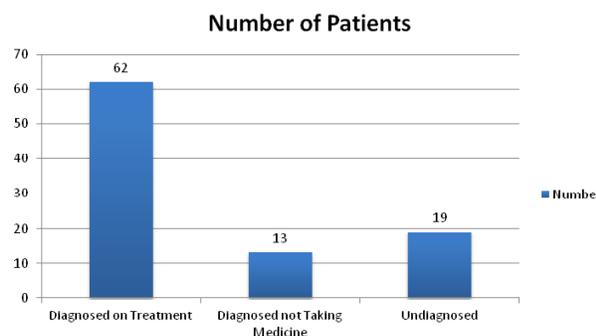
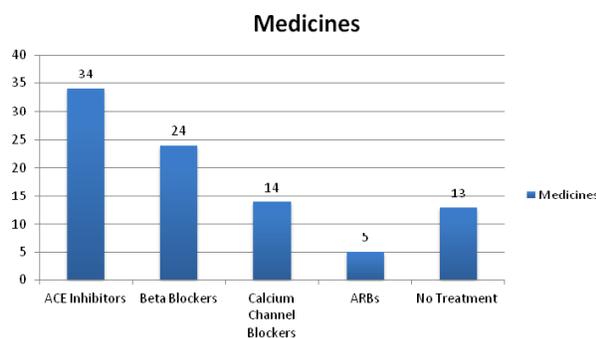
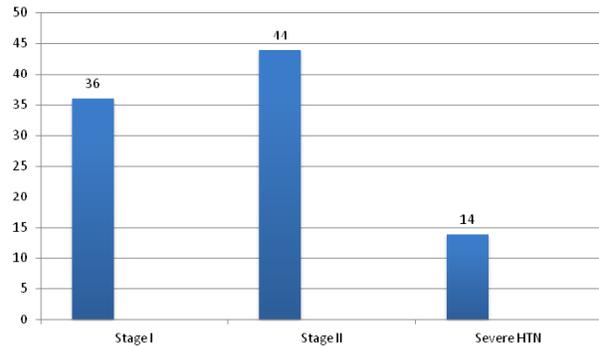


Figure 4: Number of patients taking different groups of drugs



erative hypertension is generally considered safe for proceeding for surgery¹³. However, there are concerns regarding safety of patients with severe hypertension, as it may be associated with higher risk of complications in perioperative period⁹. Severe hypertension (> 180/110) requires immediate

Figure 5: Number of Patients with Stage I, stage II and severe hypertension (HTN)



treatment. However, there has been no proven advantage of postponing surgery in patients with severe hypertension¹⁴. It is generally wise to postpone surgery only in patients with blood pressure > 180/110 mmHg¹⁵.

Different studies have reported different prevalence rates in preoperative period. In our study, prevalence of hypertension among preoperative patients was found to be 15 percent. Sapkota et al. showed prevalence of hypertension around 10% in their study¹⁶. The difference in the prevalence of hypertension may be due to differences in the sex distribution of patients. In contrast to our study, there were more males than females in their study (65% males, 35% females). Whereas in our study, there were more females than males 38.4% males 61.6% females. Hypertension was present in 17.56% of female patients and 10.2% of male patients in our study. The differences in the results of our study and that of Sapkota et al may be due to differences in the sex distribution of the patients between two studies.

The prevalence of hypertension also varies with the age of study population. According to Pakistan National Health Survey, the prevalence of hypertension varied from less than 10% in 18-19 years to greater than 60% in over 70 years in males. Similar trend was seen among females where it increases from less than 5% at 18-19 years to a peak of 70% in 60 - 69 years age. The prevalence of hypertension increases steeply with the age of population^{17,18}. Marked differences have been noted in different ethnic groups within Pakistan. Among Punjabis, prevalence of 17.3 percent among males and 16.4 per cent among females has been reported¹⁹. Different prevalence figures have been reported among patients undergoing surgery. Jonas JB et al. reported a prevalence of 22.1 percent among patients aged >30 years undergoing ophthalmic surgery in India²⁰. The age



difference between our study and that by Jonas et al explains the difference in the prevalence.

In our study, most of hypertensive patients were either stage-I or stage-II patients, which is generally not associated with any excessive complications in perioperative period²¹. Hence, there is no need to reschedule these patients for elective surgical procedures. In the modern days in the presence of well equipped operation team, uncontrolled blood pressure should not be the sole reason for

postponement of surgery.

CONCLUSION:

Prevalence of hypertension among patients undergoing elective surgery at Sir Ganga Ram Hospital, Lahore was 15 percent. Most of the patients had stage I or stage II hypertension, with stage II hypertension being the most common presentation.

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