

# Can Unexpected Preoperative Hypertension be Managed by Reassurance and Anxiolytics and Avoid Postponement of Eye and ENT Surgeries?

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## ABSTRACT

**Objective:** To highlight the fact that single preoperative high reading of Blood pressure doesn't have any effect on the surgical outcome in non-cardiothoracic and major abdomino-thoracic surgeries. In common ENT and Eye surgeries this shall not be a reason for the postponement or delay in the procedures, most of these situations can be managed by reassurance and anxiolytics

**Study Design:** Observational cross section study

**Place and Duration of Study:** This study was conducted at the Rai Medical College Sargodha and Private Consultancies of the participants from Jan to June, 2022.

**Materials and Methods:** All subjects between 20-90 years of age of both sexes, presenting for pre-operative assessment before any planned Eye and ENT surgery were assessed by measuring their BP. If it was found to be above 140/90 mmHg, they were included in this study.

**Results:** Out of 288 patients, 25% (n 72) were found to have their BP above 140/90 mmHg. 42% (n 30) were known hypertensives, out of these 37% (n11) missed the morning dose of their antihypertensive medicine and were excluded from the study. Out of the remaining 61 when BP was rechecked after 30 minutes of reassurance and comfortable, stress free environment away from OT, 18 (29%) patients had BP reading below 140/90 mmHg.

Remaining 43 (70.49%) patients were given tablet Alprazolam 0.25 mg orally and reassured again. BP was checked after 1 hour. Majority 31 (72.5%) out of 43 responded to reassurance and anxiolytics and BP returned to below 140/90mmHg and were issued fitness for anesthesia and surgery. 12 patients didn't respond and their BP remained above the limit of 140/90mmHg and their surgery was postponed. Their BP didn't respond to either reassurance or anxiolytics.

**Conclusion:** A simple explanation and reassurance by hospital staff may be sufficient to smoothen the patient's anxiety. Missed dose of routine antihypertensive medicines shall be given in cases where only regional or local anesthesia is planned.

**Key Words:** Hypertension, pre-operative hypertension, Eye and ENT surgery

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## INTRODUCTION

All routine pre-anesthetic assessments includes vital signs, most importantly BP and a normal or near normal BP is considered mandatory for anesthesia fitness. Many a time one is confronted with unexpected

hypertension in previously normotensive or well controlled hypertensive on the morning of planned common Eye and ENT surgeries. It is one of the commonest reasons for a delay or even postponement of the procedure. This study was carried out to assess the contribution of anxiety and whether it could be controlled simply by reassurance and/or use of simple anxiolytics in these situations to avoid the postponements of the surgical procedures. Recent NICE guidelines reiterate the importance of the threshold of systolic 180 mm Hg and diastolic 110 mm Hg. The grade of HTN may not be applicable to the perioperative HTN as it differs in all three important aspects of underlying mechanism, treatment responsiveness and consequences depending on patient characteristics and invasiveness of surgical procedure. The American College of Cardiology/American Heart

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Association (AHA) guidelines do not even mention hypertension, probably because of lack of evidence of its influence on perioperative outcome. <sup>(1)</sup>

**MATERIALS AND METHODS**

All subjects between 20-90 years of age of both sexes, presenting for pre-operative assessment before any planned Eye and ENT surgery were assessed by measuring their BP. If it was found to be above 140/90 mmHg, they were included in this study. Consenting patients were referred to the physician for proper assessment and management prior to surgery. They were reassured by trained paramedical staff and BP was rechecked after 30 minutes. If it settled down to below 140/90 anesthetic fitness was issued by the concerned physician. If the BP stayed above the 140/90mmHg level tablet Alprazolam 0.25 mg was given with a small sip of water along with another session of counseling and reassurance, BP was reassessed after 1 hour, if it settled down to below 140/90 anesthetic fitness was issued by the concerned physician.

**Inclusion Criteria:** 20-90 years age, both sexes, presenting for eye and ENT surgery.

**Exclusion Criteria:** Known hypertensive who have missed the routine morning dose of antihypertensive medicine.

- Seriously sick patient or terminally ill patient.
- Secondary Hypertension and pregnancy
- Major end organ disease, liver, kidney, heart, lungs
- Hypertensive urgency and emergency

**Sample Size and Sampling Technique:** A minimum sample size of 196 patients was calculated to maintain a 5 percent margin of error, a 95 percent confidence interval and a 75 percent response distribution, using a raosoft sample size calculator.

**Statistical Analysis:** Data analysis was conducted using Microsoft Excel version 2016 and Statistical

Package for Social Sciences (SPSS) software version 25. Descriptive statistics (i.e. frequency distribution, percentages, mean and standard deviations) were used.

**Disclaimer:** This is an observational study. No monetary compensation was given to the patients. Informed consent was taken. Confidentiality and personal grace are ensured in all the examinations and questionnaires. There is no monetary interest or conflict of interest for all the contributing authors.

**RESULTS**

During the study period 288 patients presented for surgery in Eye [(67%) (n 192)] and ENT [(33%) (n 96)] Departments. On preoperative assessment, 25% (n 72) were found to have their BP above 140/90 mmHg. 42% (n 30) were known hypertensive, out of these 37% (n11) missed the morning dose of their antihypertensive medicine and were excluded from the study as per exclusion criteria. The remaining 61 were referred to physicians for further management by reassurance and/anxiolytics. Only these 61 patients were enrolled in this limb of the study.

**Table No.1: Demography N 61**

Gender and Eye/ENT Surgery	Eye Males	Eye Females	ENT Males	ENT Females
< 40	N1 (1.64%)	N 0	N 0	N1 (1.64%)
40-60	N13 (21.31%)	N10 (16.39%)	N 2 (3.28%)	N 3 (4.92%)
60-80	N16 (26.23%)	N10 (16.39%)	N 3 (4.92%)	N 0 (%)
>80	N1 (1.64%)	N 0	N1 (1.64%)	N 0

**Table No.2: Preoperative BP**

Gender and Eye/ENT Surgery	Eye Males	Eye Females	ENT Males	ENT Females
< 40	n1 (1.64%) 170/100	N 0	N 0	N1 (1.64%) 165/100
40-60	N13 (21.31%) 150-195/80-105 Mean,180/99 Median,182/100 Mode, 190/100 Sd, 10.07/3.14	N10 (16.39%) 155-210/95-115 Mean, 179/99 Median,180/100 Mode, 190/100 Sd10.28/3.37	N 2 (3.28%) 155/85 Mean165/100 Median165/100 Mode165/100 Sd 0	N 3 (4.92%) 155-170/90-100 Mean,171/90 Median, 165/85 Mode, 165/85 Sd, 11.5/8.6
60-80	N16 (22.22%) 175-195/95-105 Mean,175/94.2 Median,175/100 Mode, 180/100 Sd,13.9/8.8	N10 (16.39%) 165-190/95-105 Mean,180/100 Median,175/100 Mode, 170/100 Sd, 18.4/5.9	N 3 (4.92%) 165-185/85-100 Mean, 160/93 Median,155/90 Mode, 155/90 Sd, 8.6/5.7	N 2 (3.28%) 190/100 Mean,190/100 Median,190/100 Mode,190/100 Sd, 0
>80	N1 (1.64%) 190/100	N 0	N1 (1.64%) 180/105	n 0

All these patients were properly assessed by the physicians and a team of trained staffed reassured them. When BP was rechecked after 30 minutes of

reassurance and comfortable , stress free environment away from OT, only 18 (29.5%) patients had BP reading below 140/90 mmHg.

**Table No.3-A: Non-Responders**

Gender and Eye/ENT surgery	Eye Males	Eye Females	ENT Males	ENT Females
< 40	n 0	n0	n0	n 0
40-60	n 9 (14.8% ) 150-195/80-105 Mean Median Mode SD	n 7 (11.5% ) 155-210/95-115 Mean Median Mode SD	n 1(1.64% ) 165-185/85-100 Mean Median Mode SD	n 2 (3.28% ) 155-170/90-100 Mean Median Mode SD
60-80	n13 (21.31% ) 175-195/95-105 Mean Median Mode SD	n 7 (11.5% ) 165-190/95-105 Mean Median Mode SD	n 2 (3.28% ) 165-185/85-100 Mean Median Mode SD	n 0
>80	n1 (1.64%) 190/100	n0	n1 (1.64%) 180/105	n0

**Table No.3-B: Responders to Reassurance**

Gender and Eye/ENT Surgery	Eye Males	Eye Females	ENT Males	ENT Females
< 40	n 1 (1.64% )	n0	n0	n 1 (1.64% )
40-60	n 4 (6.56% )	n 3 (4.92% )	n 1(1.64% )	n 1 (1.64% )
60-80	n3 (4.92% )	n 3 (4.92% )	n 1 (1.64% )	n 0
>80	n 0	n0	n 0	n0

**Table No. 4-A: Responders to Anxiolytics**

Gender and Eye/ENT surgery	Eye Males	Eye Females	ENT Males	ENT Females
< 40	n 0	N0	N0	N 0
40-60	N 7 (16.28% )	N 5 (11.5% )	N 1(1.64% )	N 2 (3.28% )
60-80	N 8 (18.6% )	N 6 (13.95% )	N 2 (3.28% )	N 0
>80	N 0(1.64%)	N0	N 0(1.64%)	N0

**Table No.4-B: Non-Responders**

	Eye Males	Eye Females	Ent Males	Ent Females
< 40	N 0	N0	N0	N 0
40-60	N 2 (3.28% ) 150-175	N 2 (3.28% ) 145-190	N 0	N 0
60-80	N5 (11.5% )	N 1 (1.64% )	N 0	N 0
>80	N1 (1.64%) 180/100	N0	N1 (1.64%) 180/100	N0

Remaining 43 (70.49%) patients were given tablet Alprazolam 0.25 mg orally and reassured again. BP was checked after 1 hour. Majority 31 (72.5%) out of 43

responded to reassurance and anxiolytics and BP returned to below 140/90mmHg and were issued fitness for anesthesia and surgery.

12 patients didn't responded and their BP remained above the limit of 140/90mmHg and their surgery was postponed. Their BP didn't respond to either reassurance or anxiolytics.

## DISCUSSION

The National Institute for Health and Care Excellence (NICE) guidelines 2019 serve as basis for managing hypertension in adults. Recently, the Association of Anesthetists of Great Britain and Ireland (AAGBI) and British Hypertension Society (BHS) produced joint guidelines for simplified anesthesia management and categorized hypertension into 1-4 grades. The cardiovascular risk factors especially metabolic syndrome mostly going unnoticed for a long period or under treated in diagnosed cases.<sup>2</sup> Naturally one must seek evidence of occult or evident coronary artery disease (Q waves or T wave changes or left ventricle hypertrophy on ECG) and evidence of heart failure and target organ damage before proceeding for surgery in known hypertensive patients.<sup>3</sup>

Central systolic BP may be up to 40mmHg lower than peripheral systolic BP while diastolic BP remains

relatively constant. Non-invasive tonometry using arterial flattening is reliable surrogate when applied to radial, carotid or femoral artery.<sup>4</sup>

Like in almost every other system BP control has its own "homeostasis" mechanisms intended to ensure a constantly adequate organ perfusion with ever-changing demands of different organs in response to physical or emotional stress and or sleep. Blood pressure variability (BPV) is determined by the individual reactivity of their cardiovascular control mechanisms and have role in predicting cardiovascular risk. The BPV shall be related with mean BP levels, average BP and standard deviation. The average of daytime and night-time Bp with SD corrected for the respective duration of day and night with preference for nocturnal BPV. The magnitude of nocturnal dipping and morning surge shall also be taken into account. Similarly day-by-day home BPV and clinic-within-visit and visit-to-visit BPV was found to have its role in prognosis and risk stratification. Compliance with antihypertensive medication definitely smoothens and blunts the BPV, expressed as the smoothness index, longer acting drugs have an edge.<sup>5</sup>

According to the editorial of The British Journal of Anaesthesia, 2017, hypertension impacts 1 billion adults across the globe affecting up to 80% of patients in the general population above 60.<sup>6</sup> Contrary to popular notion multiple Randomized Controlled Trials (RCT) collectively favor a higher BP target due to safety and improved outcome.<sup>7</sup> Like any other surgery non-ocular complications like bronchospasm, cardiac arrhythmia, labile BP, silent myocardial ischemia and hypertensive emergencies during cataract surgery, hypertensive patients are at a higher risk.<sup>8</sup>

In this study out of 288 patients, every 4th persons was referred to physicians for reassessment on the day of surgery when assessed preoperatively. All were either normotensive or well controlled hypertensives when assessed on the time of taking appointment for a planned ENT or Eye surgery. 11 (37%) patients who didn't took their routine dose of morning antihypertensive medicine were excluded. These patients missed the morning dose of their antihypertensive medicine as they were asked to come in fasting state or as per common belief that fasting is mandatory for each surgery.

The remaining 61 patients were properly assessed by the physicians and a team of trained staffed reassured them in a comfortable, stress free environment away from OT, in 18 (29.5%) patients BP settled down to normal BP reading i.e. below 140/90 mmHg. This strongly points out that this temporary rise in BP was simply anxiety response. All had clear cut evidence of anxiety manifesting as palpitation, tremors and cold sweaty palms. Though not formally calculated majority pointed out to the fear of surgery, claustrophobia of being alone in the OT, uncomfortable theaters waiting

room temperature especially in when in OT dress and most importantly due to presence of unfamiliar theater staff who appeared quiet indifferent and non-sympathetic. White coat hypertension is a known phenomenon and OT atmosphere can augment these reactions.

Remaining 43 (70.49%) patients were given tablet Alprazolam 0.25 mg orally and reassured again. After 1 hour majority, 31 (72.5%) out of 43, responded to reassurance and anxiolytics. This clearly favour our point of view that one or even few preoperative readings in previously normotensive or well controlled hypertensive patients shall not be a reason for alarm and postponement of planned surgery. 12 patients didn't responded and their BP remained above the limit of 140/90mmHg and their surgery was postponed. Their BP didn't respond to either reassurance or anxiolytics. Perioperative use of beta blockers is being recommended in American College of Cardiology guidelines since 2014 for major non-cardiac and vascular surgeries.<sup>3</sup>

Preoperative HTN is responsible for about 10% of surgical cancellations and in excess of 10% of intraoperative interventions, this prompted AAGBI and BHS to issue guidelines for hypertension management before elective surgery. They even very boldly recommended not to routinely checked BP preoperatively in patients whose BP was below 160/100 mm Hg in the referral letter from primary care. The argument was that it's the long term baseline BP that has importance not the spot reading on the day of surgery. One can resort to acute lowering of BP to avoid cancellation, maintain effective use of the operating theatre space and other logistical reasons. Labetolol, esmolol, nicardipine, nifedipine, clevidipine and fenoldopam, can be used in such cases. One must be cautioned to neither overestimate the benefit nor underestimate the risk of acute blood pressure reduction. Overzealous attempts may lead to unintentional hypotension due to anesthetic and analgesic drugs interaction.<sup>9,10</sup>

## CONCLUSION

The decision to postpone elective cataract surgery shall be individualized taking into consideration the comorbidities (diabetes mellitus, coronary artery disease, peripheral vascular disease, impaired renal function, smoking or dyslipidemia), general physical health, nature of surgical procedure and anesthesia. Inconvenience, anxiety, continuing risk of falls and accidents from delaying cataract surgery must therefore be weighed against the benefits of hypertension treatment. Anxiety and missing routine antihypertensive medications due to fasting on the day of surgery are the commonest reasons for preoperative high BP. Routine use of anxiolytics prior to surgery blunts hemodynamic liability. A simple explanation and reassurance by

hospital staff may be sufficient to smoothen the patient's anxiety. Missed dose of routine antihypertensive medicines shall be given in cases where only regional or local anesthesia is planned.

**Author's Contribution:**

Concept & Design of Study: Mohammad Mohsin Rana  
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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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