

CASE REPORT

Moderate Intraoperative Hypertension As A Cause of Delayed Recovery

Maj Tariq Mehmood

Grd Anaesthesiologist
CMH Mangla

INTRODUCTION

Hypertension is one of the leading causes of death and disability in most Western societies. It is the most frequent pre-operative abnormality in surgical patient with an overall incidence of 25%.

Long standing uncontrolled hypertension accelerates atherosclerosis and multiple organ damage. It is a major risk factor for cardiac, cerebral, renal and vascular disease. Complications of hypertension include, MI, congestive cardiac failure, stroke, renal failure, peripheral occlusive disease and aortic dissection.

A case is being presented in which hypertension caused delayed recovery from the general anaesthesia in a female patient.

CASE REPORT

A 30 years old lady, wife of an officer was planned for elective caesarian section. She reported in the early morning for operation. Pre-anaesthetic examination on the table revealed no abnormality clinically and available investigations were Blood CP and Urine RE which showed Haemoglobin 12.2 mg/dl and nothing else significant. The patient was nil per orum since last night. She did not give any history of hypertension or pregnancy induced hypertension.

At the time of induction, her systolic B.P. was 150 mmHg and diastolic B.P. was 90 mmHg, which was assumed to be due to tension and anxiety of operation. Pentothal 300 mg was administered intravenously, and intubation with scoline was done. Anaesthesia was maintained with O₂/N₂O/ Halothane. Soon after, B.P. raised to 180 systolic and 115 mmHg diastolic, which was thought to be due to an intubation response. Pancuronium 4mg was given as a relaxant.

After five minutes B.P. was taken again and it was 165/110 mmHg so a nifedipine (Adalat) capsule was squeezed under the tongue of the patient. When the baby was delivered, the gynaecologist requested for in-

jection of syntocinon/ ergometrine, which were given. Patient was deepened with halothane and nalbuphine 5 mg was administered. At this stage B.P. was taken and it was 150/95 mmHg. Till the end of operation, B.P. remained 145 to 170, and 65 to 95 systolic and diastolic respectively even with Isoket infusion. At the end of operation patient was ventilated with 0.5% halothane for deep extubation but for about half an hour she failed to gain respiratory effort. Then she was kept on 100% O₂ and Isoket infusion. She gained mild respiratory effort so was given reverent. After another half on hour patient gained better respiratory effort. So extubation was carried out and the B.P. recorded was 150/90 mmHg. Patient remained confused and restless. Her breathing was shallow but rapid. She was given naloxone and her blood sugar was also checked with glucometer, which was 75 mg/dl. Patient was kept on O₂ with mask for about an hour to maintain normal O₂ saturation. In that period her B.P. remained in between 120 to 130 systolic and 60 to 85 diastolic. After going through all the possible causes of delayed recovery of the above case, it was established that intraoperative hypertension was the cause of delayed recovery in this patient. Later on patient was referred to medical specialist and he diagnosed her a case of Essential Hypertension.

DISCUSSION

Hypertension during anaesthesia is an undesirable complication because of the risk of myocardial ischaemia or infarction or vascular damage.

COMMON CAUSES OF PERI-OPERATIVE HYPERTENSION

- **Light anaesthesia**
- Inadequate analgesia
- Inadequate hypnosis
- Coughing, straining on tracheal tube.
- **Coexisting hypertension**
- Untreated
- Treated
- Undiagnosed

- Phaeochromocytoma
- **Aortic Cross clamping**
- **Hypercapnia**
- **Drugs**
- Adrenaline
- Ergometrine
- Ketamine
- Pancuronium
- **Pre-eclampsia**

There is no doubt that poorly controlled hypertension during intra and postoperative period leads to an increased mortality and morbidity. However, moderate hypertension with a diastolic arterial pressure <100 mmHg does not increase risk provided that it is controlled during surgery and the early post-operative period.

In patient with a phaeochromocytoma, coarctation of the aorta or renal stenosis, particular attention should be paid to preoperative treatment if intraoperative fluctuations are to be avoided.

A hypertensive response to laryngoscopy occurs commonly. Beta-blockers given at induction may partly attenuate this. Coughing and straining at the tracheal tube may be diminished by topical analgesia of the larynx with lignocaine provided that sufficient time elapses for surface analgesia to become effective. Surgical stimulation results in hypertension if the depth of the anaesthesia is inadequate.

Ketamine should be avoided in patients with Ischaemic Heart Disease or Hypertension. Ergometrine is contraindicated in the obstetric patient with pre-eclampsia, as it can raise the blood pressure by vasoconstriction.

Cross-clamping the aorta (e.g. during repair of aor-

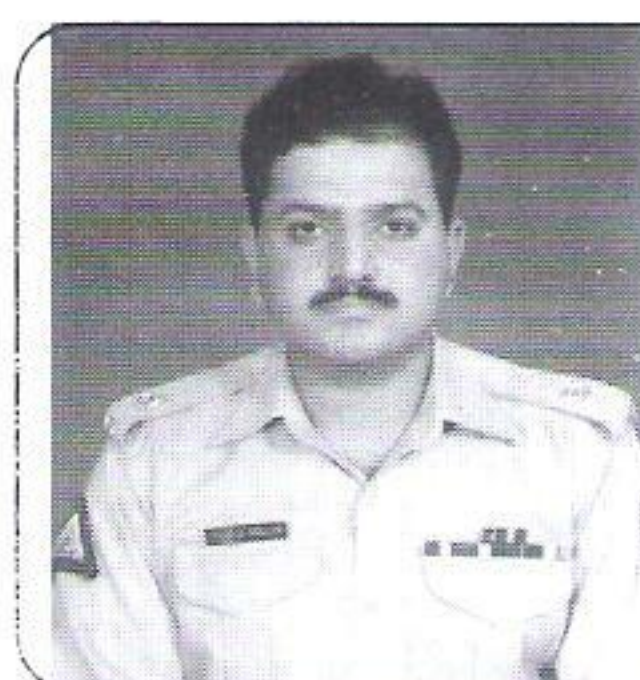
tic aneurysm) greatly increase peripheral resistance and afterload. Increased myocardial work may result in sub-endocardial ischaemia. A volatile anaesthetic agent by deepening the level of anaesthesia or sodium nitropruside may be used to control arterial pressure at a level that is normal for that patient.

Hypercapnia may lead to hypertension, tachycardia or ventricular arrhythmia's. In the absence of end-tidal CO2 monitoring, it is essential to ensure that the carbon dioxide cylinder on the anesthetic machine is not accidentally in operation and that fresh gas flows are appropriate for the anaesthetic breathing system in use.

The literature is silent about delayed recovery in hypertensive patients. Much remains to be done to probe into the pathogenesis of this phenomenon, which has been experienced by so many anaesthetists. The available data may point out towards a qualitative or quantitative defect in blood-brain barrier allowing large amounts of anaesthetic agents to enter and bind the receptors. There may be a conformational change in the receptor itself, which allows prolonged effect, or the binding may be more firm and strong. The setting of auto regulation at higher levels by CNS to changed levels of blood pressure may have to do something with this change. Hypoxia is another possibility that may cause prolonged recovery.

CONCLUSION

Anaesthetist often faces different kinds of problems in his routine anaesthesia practice. In the above case undiagnosed essential hypertension was assumed to be due to operative anxiety, Because patient had not given any history of hypertension in the past. In my little experience moderate hypertension always delays the normal recovery which may vary from half an hour to many hours. All possible measures should be taken to control peri-operative hypertension to avoid delayed recovery.



Maj Tariq Mehmood graduated from Army Medical College, Rawalpindi in 1991, and was commissioned in AMC as GDMO on 14 March 1991. He did his grading in anaesthesiology from AFGMI in 1998, and soon after passed his FCPS-I examination. He is serving as graded anaesthesiologist at CMH Mangla Cant, and will soon proceed to CMH Lahore for Part-II training.