



SUCCESSFUL MANAGEMENT OF NON CARDIAC SURGERY IN A PATIENT WITH UNREVASCULARISED TRIPLE VESSEL DISEASE

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Sir/ Madam,

Patient with unrevascularized severe coronary artery disease (CAD) poses a great challenge to the anaesthesiologist and can lead to adverse perioperative cardiac outcomes if not properly managed.

A 73 year old hypertensive and CAD patient, with shoulder dislocation, developed after a fall in the bathroom, was scheduled for cemented shoulder arthroplasty. He had history of triple vessel disease with left coronary artery 60% blockage, left circumflex artery 80% blockage and right coronary artery 90% blockage. He also gave history of cerebrovascular disease (CVD) in terms of cerebellar stroke four years back but was recovered fully at this time of presentation. Carotid Doppler showed 90% blockage in right carotid artery (RCA) and 60% blockage in LCA. Echocardiogram (ECHO), blood investigations were normal but stress ECHO was positive for inducible ischemia.

Patient was premedicated with midazolam and fentanyl and radial artery was cannulated under local anaesthesia before induction. He was induced with etomidate and atracurium given as per body weight. Injection nitro-glycerine was also started before induction.

Monitoring was done with ECG, ABP, CVP, SPO₂, temperature and urine output. Right sided interscalene brachial plexus block (with 20 ml of 0.25% bupivacaine and 150 microgram buprenorphine) was given under ultrasound guidance after induction. Injection noradrenaline and nitro-glycerine were titrated as per vitals of the patient and normothermia, normoglycemia was maintained throughout intraoperative period. Noradrenaline was stopped at the end of surgery but nitro-glycerine was continued even in postoperative period. A total of 500 ml of blood loss occurred which was replaced by packed red blood cells (PRBC).

Patient was extubated at the end of surgery and was kept for observation in Intensive care unit (ICU). A 12 lead ECG done postoperatively revealed no fresh ST-T changes. Gradually injection nitro-glycerine was tapered and stopped next morning as per vitals of the patient and patient was sent to ward after two days of observation in ICU and was discharged from the hospital on fourth post-operative day.

Optimizing myocardial oxygen (O₂) supply and minimizing demand are the primary anesthetic goals in managing these kind of cases which can be achieved by:

- Low to normal HR^[1] as myocardial O₂ demand more than doubles when HR Doubles.^[2]
- Normal to high BP within 20 percent of baseline value.
- Avoidance of fluid overload to avoid systolic wall stress and increased myocardial oxygen demand.
- Treatment of severe anaemia (i.e., hb level <8 g/dL) to maximize O₂ content in the blood.^[3]

Severe hypotension reduces myocardial oxygen supply, while severe hypertension increases demand. Noradrenaline is used to maintain peripheral resistance and Nitro-glycerine should be used for controlling BP at the time of stress beginning from induction throughout the intraoperative and critical initial postoperative period as control of hypertensive response during intubation/extubation, rate control along with euvolemia, euthermia and good pain relief are the important issues that should be addressed in patients having unrevascularised TVD.

With the exception of patients with an acute coronary syndrome (ACS) myocardial revascularization prior to noncardiac surgery to improve perioperative outcomes is not recommended.^[4]

Unrevascularised TVD patient poses a major risk for intraoperative or postoperative ischemia or cardiac failure but with proper monitoring, timely and judicious replacement of fluid and blood, judicious use of inotropes and vasodilators and with the backup preparation of anticipated cardiac events intraoperatively and post operatively these high risk cases can also be successfully managed.

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