

Anaesthetic Challenges and Perioperative Management of a Post Renal Transplant Patient Posted for a Non Transplant Surgery- A Case Report

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ABSTRACT

With the advancements in the current health care practices the number of successful renal transplants has increased exponentially. Because of which we see more number of such patients presenting for elective or emergency non-transplant surgery. Authors here would like to discuss a case of a 50 years old male with status post renal transplant suffering from severe ulcerative colitis now posted for Laparoscopic total colectomy and pouch reconstruction. This case report reviews major anaesthetic challenges and successful perioperative management for the organ transplant recipient patient undergoing major non-transplant surgery.

KEYWORDS-Perioperative management, anaesthesia methods, monitoring, organ transplant, anaesthetic complications

INTRODUCTION

For the uneventful outcome of the major surgical procedure, the transplant team, the attending anaesthesiologist and the surgeons should have a good coordination throughout the perioperative period. In addition to the standard preoperative anaesthetic check up, a thorough patient assessment should involve a careful evaluation of health status since renal transplantation, existing comorbidities and the risks associated with the type and extent of the planned surgical procedure. It is also very important to assess the type of ongoing immunosuppression regimen, its side effects, anaesthetic agents and drug interactions, as well as the graft functioning. Clinical findings such as weight gain, edema, breathlessness, decreased effort tolerance, fever, abdominal pain, abnormal breath sounds on chest auscultation, and decreased urine output can be potential signs and symptoms of infection or organ rejection.

A thorough review of all organ systems along with complete general and systemic examination is extremely essential in this population before planning the mode of anaesthesia.

For this patient blood and blood products reservation, so, transfusion, perioperative need of ICU care with so, mechanical ventilation and inotropic support, surgical/anaesthetic complications causing graft dysfunction/rejection was explained to the patient and the relatives and high risk anaesthesia consent was obtained prior to the procedure.

Authors chose general anaesthesia with controlled mechanical ventilation with continuous invasive monitoring as the plan of anaesthesia for laparoscopic total colectomy with pouch reconstruction of this patient.

CASE REPORT

Authors report a case of a 50 year old male weighing 64 kgs, known case of diabetes, hypertension and severe ulcerative colitis comfortable on medical management. Patient underwent uneventful renal transplant surgery 6 years back with wife being the donor. Patient was admitted in ER department with complaints of multiple episodes of loose bloody stools with on and off pain in abdomen and weight loss of 2 kgs in last 15 days with no reduction in urine output. Patient was conscious and oriented to time, place and person, was afebrile with vital parameters of: Blood pressure- 101/56 mmHg Pulse-96 bpm SPO2-98% on room air. Routine blood investigations were sent and the patient was shifted to ICU for further management and optimisation.

BLOOD INVESTIGATIONS	RESULT
HB/WBC/PLATELET COUNT	8.7 gm%/6270 per microlitre/1.89 lacs
PROTHROMBIN TIME/INR	13.8 secs/1.2
SERUM ELECTROLYTES- NA/K/ CL-	133 mmol/L/4.19 mmol/L/99.7 mEq/L
CREATININE	0.51 mg/dl
ALBUMIN	3.8 gm/dl

Electrocardiograph was normal. 2D-Echocardiography revealed an ejection fraction of 60% with mild left ventricular diastolic dysfunction.

CT Abdomen and pelvis reported minimal ascites with diffuse long segment colitis involving two thirds of the transverse colon, splenic flexure, descending and sigmoid colon and rectum with profound thickening in transverse and descending colon. Large pericolic collection with inflammation of jejunal loops hyperperfusion with mural discontinuity was seen. Findings suggested of colonic perforation and with abscess formation. Normal appearance of transplanted kidney in the right iliac fossa. Chest X-ray revealed mild left basal pleural effusion with subsegmental atelectasis.

Two broad gauge iv lines were secured, fluid resuscitation was started and 2 units of PCV were transfused with administration of broad spectrum antibiotics simultaneously. Triple lumen central line was inserted in right IJV and right radial artery was cannulated for intra arterial blood pressure monitoring (under local anaesthesia). Ryles tube 14 fr was also inserted through the right nostril.

Relatives of the patient were conveyed about the patient's condition and the need of the surgery. Multidisciplinary team approach was organised.

A team consisting of an ICU intensivist, Nephrologist, Cardiologist, Gastroenterologist, Gastrosurgeon and Anaesthesiologist was constituted. After reviewing patient's clinical condition, it was decided to go ahead with the surgery.

Our main anaesthetic goal was to maintain renal perfusion at all times during the surgery and provide CVP guided volume replacement, avoidance of nephrotoxic agents and least interruption in ongoing immunosuppressive regimen (Tab. Tacrolimus, Tab. Azathioprine, Tab. Wysolone). There was no evidence of graft rejection, graft functioning was normal with no signs of decreased urine output, uraemia or proteinuria. Long term immunosuppressive medications predispose these patients for opportunistic infections and they do not present with typical sign and symptoms of sepsis like fever, raised white blood cell count and physical signs of peritonitis. Considering this broad spectrum antibiotics were also started from the ICU itself. Stress ulcer prophylaxis in the form of Inj. Pantoprazole was also administered.

Patient was taken up for the surgery with all necessary preparations. In the operation theatre all the standard ASA monitors were attached, intra arterial blood pressure monitoring and CVP monitoring was also done. Base line vitals recorded were: Blood pressure-113/59 mmhg, Pulse-86 bpm, SPO2-97% on room air. All emergency drugs including Atropine, Noradrenaline, Adrenaline, Phenylephrine, Dopamine, B-Blockers etc. were prepared. All necessary drugs and equipments for general anaesthesia were kept ready. Intravenous rapid sequence induction was performed with Inj. Midazolam, Inj. Fentanyl, Inj. Propofol, Inj. Rocuronium and patient was intubated using cuffed endotracheal tube no 8. Patient was maintained on Sevoflurane, Inj. Atracurium infusion and intermittent Inj. Fentanyl boluses during the procedure.

Intraoperatively, the mean arterial blood pressure was maintained above 70 mmhg. Hourly urine output was 0.5-0.75 ml/kg/hr. Inf. Noradrenaline was started at 0.08 mcg/kg/min. Patient suffered a blood loss 1.1 litres for which 4 units packed red blood cells, 4 units fresh frozen plasma and 2 random donor platelets were transfused. ABG showed following result: PH-7.434 pO2-202 pCO2-43.6 HCO3-29.2 Na/K/Ca-138/3.9/1.02 HB-9.1 HGT-171.

The total duration of the surgery was 3 hours. Inf. Noradrenaline was tapered and stopped at the end of the operation. Patient was shifted to the intensive care unit on ventilator support, sedated and paralysed. Patient was slowly and carefully weaned off ventilator and extubated the next day. Patient was shifted to the ward from the ICU after 5 days and was discharged uneventfully on the 10th day.

DISCUSSION

A solid organ transplant when successful gets rid of the complaints and restores the function of the failed organ, but many a times persistent abnormalities from the pre-existing illness are found that may have caused the organ dysfunction or the long term complications resulting from the organ failure itself. Detailed information and medical history should be congregated from the previous medical records, questioning the patient and/or next of kin and guardian. The preoperative evaluation of transplant recipients posted for non-transplant surgery should include current status of graft function, signs of rejection if any, presence of infection, and other organ function. Signs of rejection should be ruled out and should be managed preoperatively at top priority with enhancement of immunosuppression. Infection is a notable cause of morbidity and mortality after solid organ transplantation. Presence of infection should always be preoperatively ruled out (by obtaining laboratory, radiologic, and microbiology tests)(1)

Essential parameter to contemplate in the prevention of graft failure is the maintenance of apt renal perfusion pressure. Perioperative fluid management must make sure maintenance of intravascular volume, in order to achieve good graft function. Diuretics should be cautiously given with careful gauging of the patient's volume status(2).

All inhalational and intravenous anesthetics have been used successfully in transplant recipients. The choice of anesthetics and ancillary drugs should be decided by the type and nature of the surgery and state of the patient. If hepatic and renal functions are normal, all anesthetic medications and adjuncts can be used.

In anesthetic management, it is advisable to choose drugs that do not get excreted by the kidneys. Nephrotoxic drugs should be avoided at all costs(3). Cardiovascular instability is often

seen after a recipient has recently undergone hemodialysis due to hypovolemia and hypokalemia, leading to arrhythmias and increased sensitivity to muscle relaxants(4).

Laparoscopic surgery is presently a widely accepted approach because of its advantages in terms of postoperative pain reduction, early patient recovery and reduced hospital stay. Minimally invasive surgical procedures have become very popular nowadays in transplant recipients(5).

Irrespective of the procedure performed, victorious outcomes also depend on optimal post-operative care. NSAIDs should be avoided in postoperative pain regimen no matter what(6). Considering the type and duration of the surgery performed, patient's comorbidities, and preoperative condition, the patient is transferred either to intensive care unit (ICU) or post-anesthesia care unit (PACU). Adequate monitoring is accordingly advised(7). The rate of complications in renal transplant recipients undergoing non-transplant surgery is low and ranges from 4 to 8% only(8). Due to long term immunosuppressive therapy such as steroids, delayed wound healing or wound disruption is frequently reported(9).

CONCLUSION

Pertinent knowledge of the physiology of the transplanted organ, pharmacology of the immunosuppressive therapy, and the presence of existing organ dysfunction is extremely vital for safe and successful management of transplanted patients posted for non transplant surgery. Specific studies about many perioperative challenges existing in the transplant population have not been conducted. There are lacunae in management guidelines of the same. Additional research should be encouraged with an aim to identify and troubleshoot perioperative issues and to ease the synthesis of guidelines for anaesthetic management in the transplanted patient community.

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