

The Pioneer Anaesthetic Experience in Renal Transplant in the University College Hospital, Ibadan

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ABSTRACT

The University College Hospital the first teaching hospital established by the British in 1954 in the City of Ibadan undertook. Four pioneer Kidney live donors transplant starting from the year 2008 gearing towards continuing in this direction haven embellished a transplant center. The two donors had the left kidneys successfully harvested during an electively planned live donor kidney transplant.

The age range of the donors was 24- 36 with a mean of 30yrs. All four were evaluated for comorbid medical disease for suitability in respect of biodata, marital status, occupation, height, weight, BMI, and relationship to the recipient.

Blood pressure ranged between 116/65 mmHg-135/75mmHg. The two recipients were males aged 34 and 36 respectively, were on thrice weekly dialysis and in end stage renal disease

The method of balanced general anaesthesia was the preferred method following premedication with oral diazepam and induction with Propofol in both donors and recipients. Atracurium continues to be the best drug of choice for anephric patients. With this beginning it can be concluded that renal transplant in the University College Hospital is overdue and sustainable.

Keywords: *Renal transplant, University College Hospital*

INTRODUCTION

This anaesthetic experience for living donor renal transplant carried out from 2008 to June 2010 included one female donor and one male donor while both recipients were male. A thorough assessment of the donor included the following investigations.

The laboratory investigations revealed a PCV range of 38 – 42%, E/U & Cr, ECG ECHO were within normal limits. Also HIV I/II antibodies were non-REACTIVE, HbsAg were nonreactive, CMV IgG was positive in one of the cases due to a previous infection, VDRL- negative in all the cases, Genotype: AA was preferred in all the cases in addition to blood group compatibility, which was ensured.

A review of renal angiograph for right and left renal arteries was undertaken to exclude any condition militating against harvesting a borderline kidney disease. Through the CT Angiography of one of the male donors revealed a right renal artery arising from the anterolateral aspect of the aorta at the level of the proximal 1/4th of the L1 Vertebral body. The left renal artery was seen to arise from the lateral aspect of the abdominal aorta at the level of the middle aspect of the body of L1 vertebral body and both kidneys had an accessory renal artery to the lower pole while the renal veins were solitary on each side. The right had a tortuous course but had normal caliber and outline. The choice to harvest the left kidney was still taken as in the other because of better surgical exposure and longer vascular supply.

In the case of the two recipients, the diagnosis of End stage renal disease was ascertained and the

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protocol for the team was followed using as a checklist a day before surgery and anesthesia.

MATERIALS AND METHODS

Patients: four patients (4) two donors and two recipients were prepared for the donor nephrectomy and graft transplant between the year 2008 and August 2010. The donors were found suitable and had informed consent as well as sworn affidavit taken.

A preoperative anxiolytic, benzodiazepine, Midazolam, was given overnight was given to the donors and recipients overnight. This is in addition to a hydration and preloading with colloids before induction of anaesthesia via a good I.V. line A second I.V. access is often necessary for drug administration.

A balanced general anaesthesia inducing with a sleep dose of Thiopentone and Propofol was used in one of the cases. These were administered slowly to prevent a precipitous fall in blood pressure. Endotracheal intubation was carried out by a crash induction to minimize aspiration using Atracurium. This also provided prolonged muscle relaxation. A Central line is mandatory for administration of fluid; vasoactive drugs and CVP monitoring.

Supplementary analgesics were provided with Fentanyl and Paracetamol with a standard monitoring using a multi-parameter monitor. Fluid administered was monitored via the pre induction central line tunneled through internal Jugular Vein. Isotonic crystalloid administered through another IV access dedicated to this purpose. To maintain good diuresis, generous fluid 10-20mls/kg/hr., then 2-4mls/kg/hr. The osmotic diuretic Mannitol was administered when the vascular clamp was released in addition to i.v Heparin 2000 5000 IU given when clamping the renal vessel. The Graft was transferred in a pulsatile preservative solution to improve organ viability, this was flushed by preservative solution or iced Ringers Lactate solution containing heparin. A cold ischaemic time in living donor 20-30 minutes while the warm ischaemic time allowed was not more than 3-5 minutes.

RESULT

Both the recipients and donors had patient controlled analgesia (PCA) using Pethidine or Fentanyl with paracetamol to minimize the total dose of Fentanyl administered. Interaction of these agents with anaesthetic drugs is not clinically significant.

There was no concern for airway protection, reversal and extubation. The patients were transferred to ICU. Fluid regimen followed the team protocol. Immunosuppressant continued as planned for the 1st and 2nd days. Post-operative complication anticipated included pulmonary oedema, hypothermia/hypertension, Cardiac arrhythmias and Cardiac arrest. These were all kept in view during the ICU admission. The donors were transferred to the ward after 24 hours following stable vital signs including NIBP, pulse, ECG, temperature, SpO₂. The same applied to the recipient who stayed within the 3rd and 4th day postoperatively to achieve stability. Surgery was successful in these two pioneer donors and two recipients.

DISCUSSION

The complications of chronic kidney disease (CKD) present the anaesthetist with a number of clinical challenges related in part to altered drug handling and to difficulties with vascular access and fluid balance. Safe anaesthetic management requires an understanding of CKD pathophysiology to prevent aggravation of pre-existing disease. These are the considerations in the anaesthetic management of renal transplant for live donor nephrectomy. It has to consider medical problems associated with CKD together with new developments in perioperative management [1, 2, 3, 4, 5, 6]. A consideration of ethics and prevention of damage of the recipient and donor now left with only one kidney must not be compromised. The goal of anaesthesia is to deliver a smooth anaesthesia for optimal comfort of the donor and harvesting a well perfused kidney graft in undertaking a living related or unrelated donor nephrectomy.

The preoperative assessment of both donor and recipient was well taken care of by the team protocol. For good reason both donors not only gave an informed consent but had to swear an affidavit. The induction of the recipients is particularly critical so as not to destabilize the blood pressure control due to cardiovascular response to endotracheal intubation as well as risk to aspiration.

Sodium thiopentone/ propofol were administered slowly for this reason. Atracurium is recommended for crash induction as it is capable of providing satisfactory intubating conditions in 90

seconds. Suxamethonium though considered as best choice for crash induction is contraindicated if potassium is greater than 5.5mmol/l [1]. Atracurium continues to function as best drug of choice for end stage renal disease for long acting muscle relaxation as it does not depend on the kidney for excretion. It is spontaneously degraded in the plasma by the Hoffmann's degradation.

A very important issue in renal transplant is ensuring diuresis after cross clamping following vascular anastomosis. Mannitol, low dose dopamine, or high dose furosemide come handy to use. These choices carry the patients into the postoperative period [8, 9, 10, 11].

Post-operative analgesia results in great discomfort in a donor who under treatment of pain could be discouraging. The Patient Controlled Anaesthesia (PCA) is highly recommended. The choice of morphine in the recipient however must be used with great caution due to a long lasting respiratory depression induced by morphine-6-glucuronide [12].

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