

Anaphylactic shock during living donor hepatectomy: An anaesthesiologist's nightmare and the recipient's too?

Sir,

Donor safety is a major concern for living donor liver transplantations (LDLTs). Unfortunately, drug-related anaphylactic reactions can occur even with a negative skin test and can be life-threatening. We report a case where LDLT was cancelled because of intraoperative anaphylactic shock in a donor. It remains a matter of debate whether these patients can be reassessed as organ donors for an altruistic surgery.

A 42-year-old American Society of Anesthesiologists physical status-I female with no known allergies was posted for donor hepatectomy. Antibiotic sensitivity to piperacillin-tazobactam was checked using a skin test and was negative. Preoperative vitals were stable. Following completion of the safety checklist, a thoracic epidural catheter was inserted and anaesthesia was induced with fentanyl (150 µg), propofol (150 mg) and

vecuronium (8 mg), and the trachea was intubated with a 7.5-mm cuffed endotracheal tube. The left radial artery was cannulated. A central venous line was inserted in the right internal jugular vein. Following this, 4.5 gm of piperacillin + tazobactam was administered as an intravenous (IV) infusion over 20 min. Ten minutes after completion of the antibiotic, the patient had a sudden drop in blood pressure from 98/60 mm Hg to 50/34 mm Hg. Heart rate was 64/min. Immediately, 30 mg ephedrine was given as sequential boluses of 9 mg IV. Simultaneously, 1 L bolus of Plasmalyte™ and 100% oxygen was administered. The patient had facial flushing, urticaria and bilateral rhonchi with an increase in the peak airway pressure. Anaphylactic shock was strongly suspected. Three sequential boluses of IV adrenaline 100 µg each were administered. BP increased to 90/40 mm Hg. Adrenaline infusion at 6 µg/min was started and titrated to a mean arterial pressure of 65 mm Hg. Simultaneously, IV hydrocortisone 100 mg and diphenhydramine 12.5 mg were administered. Salbutamol was administered with a metered-dose-inhaler through the endotracheal tube. Arterial blood gas analysis revealed metabolic acidosis: pH 7.29, pCO₂ 38.3 mm Hg, pO₂ 279 mm Hg, HCO₃⁻ 17.9, base excess-7.6 and lactate 2 mmol/l.

Surgery was cancelled in view of donor safety. Tryptase levels could not be done due to unavailability of the facility in our hospital. Over the next 3 h, the patient was stabilised, extubated and then shifted to the intensive care unit (ICU). Adrenaline infusion was then tapered off and stopped after 4 h. The patient was shifted out of ICU the next morning.

Perioperative anaphylaxis is well recognised.^[1,2] Gandhi *et al.*^[3] found that around 2/3rd of anaesthesiologists witnessed anaphylaxis perioperatively. However, there are only a handful of cases highlighting intraoperative anaphylactic shock in LDLT donors. In 2012, Shinoda *et al.*^[4] published a case where liver transplantation was cancelled due to intraoperative latex-induced anaphylaxis in the donor. In an alarming case report by Lee *et al.*,^[5] a patient developed severe anaphylaxis following donor hepatectomy for LDLT and required extracorporeal cardiopulmonary resuscitation.

A patient who has developed severe anaphylaxis once to a drug perioperatively is at risk for a similar reaction with other agents again during surgery.^[6] For organ donation, where donor safety is paramount, this is especially important as adverse drug reactions increase intraoperative morbidity. Cancellation of transplant surgery has medical, financial and emotional implications for the donor, recipient and their family and can prove life-threatening for the recipient. If another donor is not available, it would mean the end of the road for the patient.

A standard procedure followed in case of intraoperative anaphylaxis is to order a panel test. Unfortunately, negative panel tests do not completely rule out the chance of anaphylaxis, which can occur even when the skin test is negative. Renaudin *et al.*^[7] found that skin tests were positive only in 72.3% of drug-induced hypersensitivity cases. Unlike other surgeries which are a treatment for the person undergoing them, organ donation is not for medical benefit to the donor. Thus, it is debatable whether it is safe and ethical to consider these patients as organ donors again. The authors feel that scientific discussions and debates in this aspect are required considering the rising numbers of living donors in our country.

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Conflicts of interest

There are no conflicts of interest.

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