

Romeo D, Aronson L
Cincinnati Children's Hospital Medical Center , Cincinnati , OH, USA

Summary: The case describes the intraoperative differential and management of profound hypotension during kidney transplantation.

Case Report: A 19 mo, 11 kg, ASA PS IV male with ESRD, aortic root dilatation, LVH and HTN (clonidine, enalapril, losartan, metoprolol, nifedipine), underwent a living-related kidney transplant. PMH showed NKDA and uneventful anesthetics. After smooth induction and intubation, he was maintained on desflurane, cisatracurium and fentanyl. Dopamine was given for labile pressures. Despite a CVP of 14, hypotension at reperfusion required phenylephrine, albumin and PRBC's.

90 minutes after reperfusion, MAP dropped from 75 to 40 without surgical bleeding and a well-perfused allograft. Hypotension persisted despite phenylephrine infusion, fluid boluses, epinephrine and stopping 3% desflurane. The transfusion line was disconnected and labs were sent for histamine, tryptase, free hemoglobin, ABO/Rh, DAT and bilirubin. Ranitidine, diphenhydramine and ketamine were given. TTE only found hyperdynamic systolic function. There were no ventilatory or cutaneous changes evident. 75 minutes later, patient stabilized on only norepinephrine 0.05mcg/kg/min. He went to the PICU intubated and sedated. He recrudesced with early attempts to wean norepinephrine, but was extubated and off vasopressors on POD1. Intraoperative tests were normal. An allergy consult suggested desflurane sensitivity after a negative latex RAST test.

Discussion: Intraoperative hypotension differential includes anaphylaxis, transfusion reaction, ACE-I refractory hypotension, hypovolemia, overdose and sepsis. Allergy consult identified unusual desflurane sensitivity in a medically complex patient. A prior anesthetic with desflurane resulted in hypotension not seen with sevoflurane exposures. ACE-I associated refractory hypotension with anesthesia is well-documented, making resuscitation challenging with traditional interventions (fluid bolus, ephedrine, or phenylephrine). Vasopressin and methylene blue have been reportedly effective.

Anaphylaxis and transfusion reactions require a high index of suspicion under anesthesia and appropriate labs should be sent in a timely manner. Plasma histamine levels peak between 10 and 30 minutes while tryptase levels peak at 60-90 minutes remain elevated for several hours. A recent study suggests platelet-activating factor may be a better indicator of acute allergic reaction. In the event of a suspected transfusion reaction the infusion should be stopped immediately and the blood bank contacted. Testing included free hemoglobin, bilirubin and ABO/Rh, DAT of both the donor and the transfused blood.

Our case demonstrates an unusually prolonged hypotensive response to low dose desflurane in a complex patient with poorly controlled hypertension during kidney transplantation. Be it idiosyncratic or a drug interaction remains unclear.

References:

- 1 Thoma, A. AANA J. 2013.
 - 2.Greenberger, PA et al. Allergy Asthma Proc. 2012.
 - 3.Vadas, P et al. J Allergy Clin Immunol. 2013.
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