

Total Intravenous Anaesthesia vs. Inhalational Agents in a Patient with Autoimmune Liver Disease

Sir,

A 24-year parturient, diagnosed case of primary biliary cholangitis, an autoimmune liver disease (AILD), with thrombocytopenia, presented at 34 weeks of gestation for elective lower segment cesarean section, with a preoperative platelet count of 43,000/ul. As the regional anaesthesia technique was not offered due to thrombocytopenia, it was decided by the multidisciplinary team to proceed with general anaesthesia using total intravenous anaesthesia (TIVA) with propofol as her liver function tests were within normal limits. The patient was intubated *via* the rapid sequence induction method, using propofol, 2 mg/kg, and suxamethonium, 1.5 mg/kg. TIVA with propofol was started at the standard infusion rate of 10 mg/kg for the first 10 minutes, 8 mg/kg for another 10 minutes, then 4 mg/kg for the next 10 minutes, and then 2 mg/kg for the rest of the procedure, using 18 gauge intravenous cannula, and was discontinued on the skin closure. Six units of platelets were transfused intra-operatively, which increased her postoperative platelet count to 71,000/ul. Pfannenstiel incision was given and the baby was delivered with a good appearance, pulse, grimace, activity, and respiration (APGAR) score. During the procedure, 1000 ml of normal saline was administered, and the total estimated blood loss was 600 ml. The patient remained vitally stable throughout the procedure.

Nalbuphine (0.1 mg/kg) was offered for the pain relief postoperatively, avoiding non-steroidal anti-inflammatory drugs (NSAIDs) and paracetamol due to AILD. On successful extubation and rapid recovery, she was shifted to the intensive care unit for observation. On postoperative inquiry, she did not complain of awareness during anaesthesia and was discharged on the second postoperative day.

TIVA confers many advantages over a conventional volatile technique, particularly a better recovery profile with reduced risk of postoperative nausea and vomiting while retaining amnesia.¹ A comparison was made between inhalational anaesthesia and TIVA in patients with increased liver transaminase levels preoperatively by Oh *et al*. They concluded that TIVA technique may be safer for patients with elevated liver enzymes.² Uterine relaxation causes uterine atony, which is an undesired effect of isoflurane during Caesarean section. Isoflurane depresses the contractility of the isolated human uterine muscle.³ A case of a fulminant hepatic failure caused by the use of isoflurane anaesthesia was presented by Peiris *et al*, which resulted in death of the patient. In another case report, Sinha *et al*, deduced isoflurane as a potential cause of liver toxicity.^{4,5}

The use of inhalational agents in patients with liver disease can be hazardous. TIVA, a relatively safe method, offers rapid recovery of consciousness, and psychomotor function with a lower risk of postoperative nausea and vomiting. It may serve as an effective strategy for the management of pregnant patients with AILD.

COMPETING INTEREST:

The authors declared no competing interest.

AUTHORS' CONTRIBUTION:

JB: Worked on preoperative preparation, perioperative care, consent from the patient, literature search, and initial write-up of case summary and discussion.

SS: Supervised during the clinical case, worked on proofreading, editing and approval of final manuscript.

HS: Worked on proofreading, editing and approval of the final submission.

All authors approved the final version of the manuscript to be published.

REFERENCES

1. Kumagi T, Heathcote E. Primary biliary cirrhosis. *Orphanet J Rare Dis* 2008; **3**:1. doi: 10.1186/1750-1172-3-1.
2. Oh SK, Lim BG, Kim YS, Kim SS. Comparison of the postoperative liver function between total intravenous anaesthesia and inhalation anaesthesia in patients with preoperatively elevated liver transaminase levels: A retrospective cohort study. *Therapeutics Clin Risk Manage* 2020; **16**:223-32. doi:10.2147/TCRM.S248441.
3. Abadir Adel R, Humayun Shaesta G, David C, Jonas G. Effects of isoflurane and oxytocin on gravid human uterus in vitro. *Anaesth Analg* 1987; **66**(2):p S1.
4. Peiris LJ, Agrawal A, Morris JE, Basnyat PS. Isoflurane hepatitis-induced liver failure: A case report. *J Clin Anaesthesia* 2012; **24**(6):477-9. doi: 10.1016/j.jclinane.2011.12.0040.
5. Sinha A, Clatch RJ, Stuck G, Blumenthal SA, Patel SA. Isoflurane hepatotoxicity: A case report and review of the literature. *Am J Gastroenterol* 1986; **91**(11):2406-9.

Javeria Bakhtawar, Sheema Siraj and Hussaini Sulaiman

 Department of Anaesthesiology, Patel Hospital, Karachi,
 Pakistan

Correspondence to: Dr. Javeria Bakhtawar, Department of
 Anaesthesiology, Patel Hospital, Karachi, Pakistan
 E-mail: javv1996@hotmail.com

.....
 Received: April 11, 2023; Revised: June 12, 2023;

Accepted: June 13, 2023

DOI: <https://doi.org/10.29271/jcpspcr.2023.1333>

