

Capsule Summary

Propofol-based total intravenous Anesthesia (TIVA) vs Desflurane on corrected QT interval (QTc) values during living donor liver transplantation

Propofol-based total intravenous anesthesia (TIVA) vs desflurane on corrected QT interval (QTc) values during living donor liver transplantation. QT interval prolongation is seen in cirrhotic cardiomyopathy. This may cause ventricular arrhythmias like torsades de pointes and sudden cardiac death which may occur during liver transplantation. Inhalational anesthesia using desflurane is commonly favored during liver transplantation. However, studies have reported that desflurane can cause prolongation of the QT interval. Prolongation of the QT interval by propofol has also been previously reported (1,2). No previous study has compared the effect of desflurane and Total Intravenous Anesthesia (TIVA) using propofol on QTc prolongation during liver transplantation. Recently, researchers in Korea carried out a study which compared desflurane inhalation anesthesia and propofol based TIVA. The study is summarized below.

Objective:

To compare the effects of two anesthetic methods (desflurane inhalation anesthesia vs. propofol-based TIVA on corrected QT interval (QTc) values during living donor liver transplantation

Study Design:

A total of 120 patients who underwent living donor liver transplantation were randomized to either the desflurane (n=60) or TIVA (n=60).

Primary Outcome:

The primary outcome was intraoperative QTc change

Secondary Outcome:

Other electrocardiogram, hemodynamic findings and postoperative outcomes

Results:

- QTc values were prolonged intraoperatively in both groups; however, the change was smaller in the TIVA group than in the desflurane group (PGroup × Time < 0.001).
- QTc values of > 500 ms were more in the desflurane group compared to the TIVA group (63.3% vs. 28.3%, P < 0.001).
- In patients with preoperative QTc prolongation, QTc was further prolonged in the desflurane group, but not in the TIVA group (PGroup × Time < 0.001) in the patients who had a preoperative QTc prolongation.
- Intraoperative norepinephrine and vasopressin use were higher in the desflurane group than in the TIVA group.

Conclusion:

- QTc prolongation during living donor liver transplantation may be reduced by Propofol-based TIVA compared to those observed with desflurane inhalational anesthesia, particularly in patients with preoperative QTc prolongation.
- Patients managed with propofol-based TIVA required less vasopressor during the procedure compared to those managed with desflurane inhalational anesthesia

The full text is available at <https://www.nature.com/articles/s41598-022-08592-4>

References:

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2. Kim, D. H. et al. Effects of target concentration infusion of propofol and tracheal intubation on QTc interval. *Anaesthesia* 63, 1061–1064. <https://doi.org/10.1111/j.1365-2044.2008.05564.x> (2008).

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