In reply: Sevoflurane in patients at risk of ventricular dysrhythmias

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To the Editor:

I wish to thank Dr. Charbit for his comments [1] on our recent article [2]. I address his comments here.

Kang et al. [3] demonstrated that sevoflurane did not block the hERG channel current (IKr), but rather inhibited the channel that carries IKs (potassium currents). IKr, rather than IKs, inhibition causes drug-induced torsades de pointes. Therefore, sevoflurane may be safer than other volatile agents for patients at risk of ventricular dysrhythmias. Moreover, propofol inhibits L-type calcium currents (ICa), even at clinical concentrations [4]. Blockage of ICa is known to attenuate the QT interval, prolonging the effects of many drugs [3]. However, our conclusion was probably overstated because this study did not include patients at risk of ventricular dysrhythmias.

QTc interval prolongation is correlated with sevoflurane concentration [5]. The sevoflurane concentration, in our study, was high enough to prolong the QT interval, as the ETsevo reached 1.7% immediately before intubation. However, the limitation of our study was that it did not include a control group that received only sevoflurane.

Compliance with ethical standards

Conflict of interest The author declares that he has no competing interests.

References

1. Charbit B (2017) Sevoflurane in the patients at risk of ventricular dysrhythmias. J Anesth. doi:[10.1007/s00540-017-2346-y](https://doi.org/10.1007/s00540-017-2346-y)
2. Terao Y, Higashijima U, Toyoda T, Ichinomiya T, Fukusaki M, Hara T. The effects of intravenous anesthetics on QT interval during anesthetic induction with sevoflurane. J Anesth. 2016;30:929–34.
3. Kang J, Reynolds WP, Chen XL, Ji J, Wang H, Rampe DE. Mechanisms underlying the QT interval-prolonging effects of sevoflurane and its interactions with other QT-prolonging drugs. Anesthesiology. 2006;104:1015–22.
4. Liu Q, Kong AL, Chen R, Qian C, Liu SW, Sun BG, Wang LX, Song LS, Hong J. Propofol and arrhythmias: two sides of the coin. Acta Pharmacol Sin. 2011;32:817–23.
5. Han DW, Park K, Jang SB, Kern SE. Modeling the effect of sevoflurane on corrected QT prolongation. Anesthesiology. 2010;113:806–11.

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