Assessing the effect of sevoflurane anesthesia on cardiac and brain protection compared with propofol in patients undergoing cardiac surgery: A meta-analysis

Wenzhao Bao¹, Yin Bao¹, Changshun Bao¹, and Li Qi¹

¹Affiliated Hospital of Inner Mongolia University for the Nationalities

September 28, 2021

Abstract

Objective: Whether sevoflurane anesthesia is superior to propofol anesthesia in cardiac protection is still unknown. Here, we aim to compare the cardio-/neuro-protective efficacy of sevoflurane and propofol on patients undergoing cardiac surgery. **Design:** We searched studies based on predefined strategies in MEDLINE, the Cochrane Library, Web of Science and EMBASE. Standardized mean difference (SMD) and relative risk were employed to combine continuous and binary measurements respectively using R packages “metafor”. Subgroup analysis was performed and publication bias was evaluated. **Results:** A total of 26 studies were included in our meta-analysis, with 1510 in the sevoflurane group and 1494 in the propofol group. Compared with propofol anesthesia, sevoflurane anesthesia could not significantly reduce the all-cause mortality (OR = 0.79[0.36, 1.74], p-value = 0.564). Although sevoflurane anesthesia was superior to propofol in reducing postoperative cTnI (SMD = -0.93[-1.36, -0.50], p-value < 0.001), such cardio-protection effect would diminish with time since the differences of postoperative 12h and 24h cTnI became insignificant after Bonferroni correction. The results of neuroprotection are rather contradictory and needs further investigation. **Conclusion:** The sevoflurane anesthesia cannot result in a lower all-cause mortality rate than propofol anesthesia among patients undergoing cardiac surgery despite of its minor protective effects.

Hosted file

manuscript_July.pdf available at <https://authorea.com/users/438285/articles/539522-assessing-the-effect-of-sevoflurane-anesthesia-on-cardiac-and-brain-protection-compared-with-propofol-in-patients-undergoing-cardiac-surgery-a-meta-analysis>

Hosted file

Figure.pdf available at <https://authorea.com/users/438285/articles/539522-assessing-the-effect-of-sevoflurane-anesthesia-on-cardiac-and-brain-protection-compared-with-propofol-in-patients-undergoing-cardiac-surgery-a-meta-analysis>