



Greenhouse gases and halogenated volatiles: the choice of airway device matters

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To the Editor,

Halogenated volatile drugs are an important component of general anesthesia. Nevertheless, there is a growing awareness of the greenhouse gas effect associated with these agents. Moreover, exposure to waste volatile anesthetic gases is also associated with health risks for operating room (OR) personnel.¹ In an interesting recent publication in the *Journal*, Alexander *et al.* consider strategies to minimize the negative environmental impact of volatile drugs by employing strategies such as low-flow anesthesia, the use of regional techniques, and/or total intravenous anesthesia, and eschewing the use of nitrous oxide and desflurane (which have a relatively large carbon footprint) in favour of sevoflurane.² While we agree that it is important to choose the most appropriate and safe volatile anesthetic, choosing the right airway device is also an important consideration that has been underestimated. Leakage of volatile gases into the OR can be continuous and unappreciated, and sources include insufficient gas scavenging and escape from the anesthesia circuit, including the airway device.³

Volatile gas leakage in the OR is an important health problem particularly with regard to their potential genotoxic effects.⁴ To measure OR personnel exposure to volatiles, many strategies have been applied by occupational safety and health agencies, including (but

not limited to) periodic air sampling by gas chromatography, real-time air monitoring of ambient OR air and/or individuals' breathing zones by infrared spectrophotometry, and urine analysis of samples collected from OR personnel.¹ To minimize exposure to volatiles, preventive efforts should include the consideration of airway devices. Nevertheless, the best airway device to diminish potential gas leakage remains unclear. In this regard, trials have evaluated the efficacy of different airway devices (e.g., facial mask, cuffed and uncuffed endotracheal tubes, and supraglottic airway devices) to reduce contamination, but their results are inconclusive. What is certain is that all devices permit gas leakage.^{1,3-5} Given the potential health risks resulting from waste anesthetic volatiles and the inconclusive data concerning the relative contribution to this problem from a continuously evolving option of airway devices, further clinical and bench-study research into this matter seems warranted.

Conflicts of interest None declared.

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Research involving human participants and/or animals This paper did not include human participants and/or animals.

Editor's Note The authors of the article: Can J Anesth 2018; 65: 221-2, respectfully declined an invitation to submit a reply to the above letter.

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