**Abstract** *(in English – Times New Roman 12 - max. one page)* Deadline for receipt: March 31, 2024

|  |
| --- |
| Title: Evaluating anesthesiologists’ awareness about sevoflurane impact on climate changeAuthor(s): Dr Giulia Giovanna Scandurra – Civil Hospital Marie CurieDr Philippe Dony – Civil Hospital Marie CurieHospital/Institute: Civil Hospital Marie Curie Chau. de Bruxelles 140, 6042 Charleroi |
| **Objective:** 1. Understanding anesthesiologists’ awareness and attitude about sevoflurane impact on climate change2. Analyzing the average consumption of sevoflurane at « Marie Curie » Hospital in Charleroi **Background:**Climate change is one of the imperatives problems we need to face in the current century. Greenhouses gases (GHGs) emissions are completely destabilizing our planet’s weather and climate system by increasing average temperature, causing extremes weather events, changing wildlife habitats, rising seas surface and declining air quality with a negative impact on human health.Volatile anesthetics are recognized to contribute to climate change by altering the photophysical properties of the atmosphere 1,2,3. Sevoflurane particularly do not catalytically destroy ozone but its trace in the earth’s atmosphere absorbs and reduce outgoing infrared thermal energy warming the environment. Determining the exact climate impact of worldwide anesthetic procedure using sevoflurane is complicated because of limited available data on usage of anesthetics agents, that’s why we are studying them. Although the contribution of volatile anesthetics to total GHG emissions is small (0.1%) compared with CO2 (82.2%), it is still important to consider the long-term, cumulative impact of inhaled anesthetics on climate change, finding strategies to minimize the introduction of these agents into the environment.2,3,4**Methods:** We used an anonymous survey based on an ad hoc questionnaire conducted from March and planned to last until April 2024, to investigate anesthesiologists’ perception of sevoflurane gas consumption and its impact on climate change. We observed the relationship between their knowledge and a pro-environmental action at their workstation. The population of our study will be represented by 200 certified anesthesiologists and anesthesia residents, living in Belgium, Italy and France.We performed a retrospective registry-based cohort study between January 2015 and July 2023 in Marie Curie Hospital, using anesthesia information management systems and the departmental hospital databases. The link between the handwritten data from the pharmacy represents the quantity estimated by the anesthesiologist of gas consumed during the act of anesthesia. The amount used is obtained from the information provided by the ventilator at the end of each procedure. The possible savings are based on the scientific recommendations to be applied to the settings of the anesthesia respirators. The comparison of these data constitutes the basis of the analysis.**Results:** Preliminary findings are based on 130 anesthesiologists’ replies. Our results shows that 45,38 % of our anesthesia providers never read about the impact of anesthesia on global warming; 53,85% have read articles about this subject but only the 88,24% of them were convinced that inhaled anesthetics contribute to global warming. The 87,88% is ready to receive ecological information adapted to their profession as anesthesiologist and 89,8% would like to adopt strategies to reduce the consumption of sevoflurane in their professional habits. Other results are under analysis.**Conclusions:** This study highlights the fact that there are still too many anesthesiologists who are unaware about anesthetic gases impact on climate, but most of them are ready to incorporate environmentally conscious anesthetics practice to reduce global pollution. It is imperative to raise awareness on volatile anesthetics consumption and promote volatile gas sparing strategies to combat climate change.**References:**1. Ishizawa Y. General anesthetic gases and the global environment. *Anesth Analg*. 2011;112:213–217.
2. Sulbaek Andersen MP, Nielsen OJ, Wallington TJ, Karpichev B, Sander SP. Medical intelligence article: assessing the impact on global climate from general anesthetic gases. *Anesth Analg*. 2012;114:1081–1085.
3. Varughese, S., & Ahmed, R. (2021). Environmental and Occupational Considerations of Anesthesia: A Narrative Review and Update. *Anesthesia and analgesia, 133*(4), 826-835. doi:10.1213/ANE.0000000000005504
4. Ryan SM, Nielsen CJ. Global warming potential of inhaled anesthetics: application to clinical use. *Anesth Analg*. 2010;111:92–98.
 |