Halogenated anesthetics choice and management can decrease environmental impact and improve the benefits.

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Background and Goal of Study:

- ✓ All the halogenated anesthetics (HA) are greenhouse gases and have potential significant impact on global warming.
- ✓ Weakly metabolized, they are exhaled, and transferred by most ventilators unchanged into the atmosphere [1].
- ✓ The use of closed circuit anesthesia reduces HA use [2].
- ✓ Desflurane has the highest global warming potential (2540) and the longest half life in the atmosphere (14 years)
- Our study's objective was to decrease the use of HA by implementing a written protocol aiming at promoting a "low flow" anesthesia and a wise drug selection.

Materials and Methods:

- ✓ We performed a prospective survey of 100 randomly chosen patients before and after the presentation of the protocol to the staff.
- ✓ Using a bottom up approach, we collected:
 - type of HA used and hourly consumption
 - annual consumption of Sevoflurane and Desflurane before and after the staff education

A parametric t-test was used to compare the data.

To note, anesthesia was always performed without Nitrous oxide.

Results and Discussion:

The initial mean consumption of Sevoflurane and Desflurane were respectively 11ml/h (+/- 4) and 21 ml/h (+/- 12). After the educational training, both consumptions remained at the same level (11±3 and 21±10 respectively, $p>0.05$). Conversely, the pharmacy consumption of Sevoflurane increased while the Desflurane's one decreased (figure 1) ($p<0.05$) without a change in the number of cases during the study period. The writing of a protocol and an educational staff significantly reduced our Desflurane consumption. A better choice in the gases indications seems to be accountable for this reduction. The absence of reduction in the hourly consumption may be related to the already low fresh gas flow that was used (the baseline measurement of average fresh gas flow was at 0.86 l/min (+/- 0.23)).

Conclusion:

A better understanding of the HA properties allow to a better utilization and to an important decrease in costs and environmental impact.

References:

- [1] Sulbaek Andersen, Anesthesia Analgesia 2012
- [2] Feldman, Anesthesia Analgesia 2012