

Sevoflurane : Action at the TRP receptor and stability of the compound

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Abstract : The inhalational anesthetic sevoflurane differs from the other volatile compounds due to a specific combination of characteristics such as absence of airway irritation, low solubility and relatively low rate of metabolism (3-5%). A recent series of studies indicate that in contrast to isoflurane and desflurane but also in contrast to the intravenous anesthetic propofol, sevoflurane does not activate a transient receptor potential (TRP) ion channel involved in enhancement of pain and inflammation (Matta *et al.*, PROC. NATL. ACAD. SCI. USA, **105**, 8784-9, 2008). Currently, sevoflurane is available in two forms : the generic compound and the brand

compound. There are subtle differences between the two formulations, the most important the addition of 300-600 ppm water in the brand compound. The manufacturer added the water in response to the observation of sevoflurane degradation (causing the accumulation of toxic degradation products and reduction of pH) when the compound came into contact with Lewis acids. Water (300-600 ppm) is an effective inhibitor of Lewis acids and therefore effectively prevents degradation. In my presentation I will discuss the action of anesthetics at the TRP ion channel and expand on the issue stability of sevoflurane.

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