



Unexpected, terrible trouble with the electric vaporizer

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To the Editor:

Desflurane is popular with its advantages in the excellent and rapid emergence and the hemodynamic stability during general anesthesia. I experienced an abnormal behavior of a desflurane vaporizer which could cause terrible accidents.

I was maintaining a quite usual, stable low-flow general anesthesia with 0.5 L/min of fresh gas flow. The fraction of inspired O₂ (FiO₂) was approximately 0.5, and end-tidal desflurane (EtDes) was maintained at 3%. Suddenly an alarm beeped from the Tec 6 Plus vaporizer (GE healthcare, Chicago, IL, USA) with the “NO OUTPUT” light. Then the gas monitor in the anesthesia machine beeped. The FiO₂ showed 0.18 and EtDes was 24% (Fig. 1). I immediately changed the inhaled anesthetic from desflurane to sevoflurane and increased the fresh gas flow to 8 L/min to wash the desflurane out. Fortunately, there were no apparent

hemodynamic changes. However, the tidal volume with the pressure-controlled mechanical ventilation was transiently decreased from 400 to 280 mL, which soon recovered. The vaporizer was sent back to the main corporate in the US for the investigation of the cause of the accident, and they found a crack of the rotary valve which regulates the volume of vapor being delivered to the fresh gas mixture. It was estimated that an unexpectedly large amount of desflurane, through the crack, was mixed with the fresh gas, resulting in the high concentration of desflurane and extremely low FiO₂.

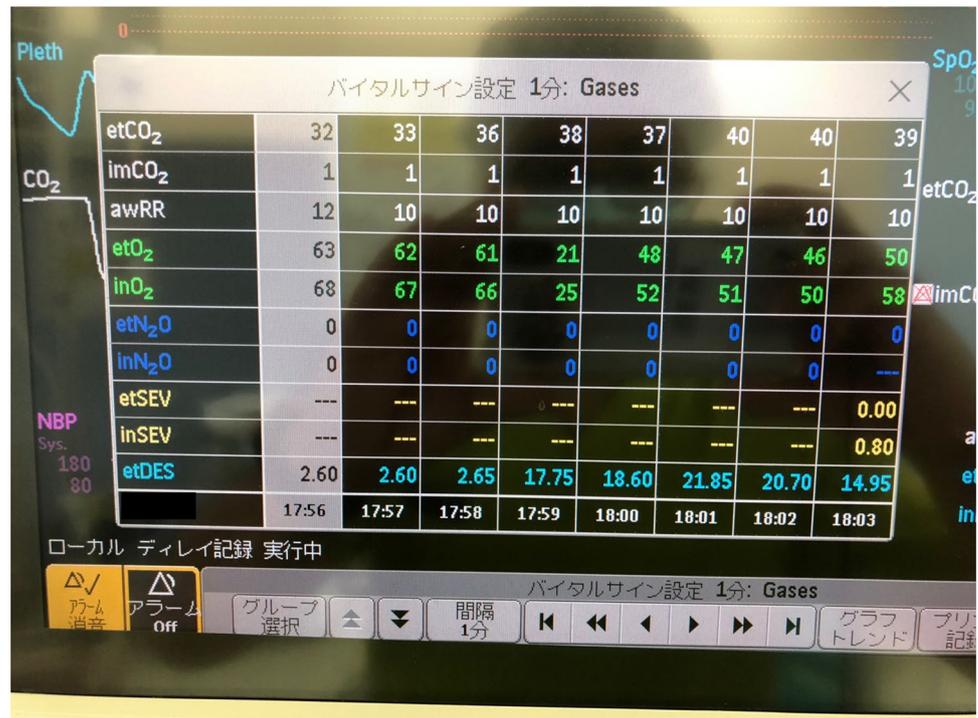
Although my patient experienced no major complication, there was a case of cardiac arrest due to an inappropriately high concentration of desflurane [1]. The administration of desflurane under “the rule of 24” might have made the difference in the clinical course.

After long experiences of inhaled anesthetics, a priori trust is already established to the vaporizers. However, to

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Fig. 1 The record of the gas monitor. Note that the end-tidal desflurane is above the maximum concentration available (18%)



break is machine and to foresee is human. We always have to pay attention to the behaviors of anesthesia devices.

Compliance with ethical standards

Conflict of interest The author declares that he has no competing interests.

References

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