

## GENERAL ANESTHESIA IV

Sevoflurane (Sevorane®): Colorless flammable and non-explosive anesthetic in the form of liquid. No stabilizers are required for protection. Blood / gas coefficient of sevoflurane is 0.65. Therefore, it provides a quick induction and awakening. It is a volatile anesthetic used with its unique vaporizer (Sevotec). The MAC level in humans is 1.71-2.05%; in animals; % 1,97-3,3. When sevoflurane is administered 5% for induction, anesthesia occurs within 2 minutes. 0.5-3.8% is used as maintenance dose. Generally, the maintenance dose rate is 3.3%. Sevoflurane is an anesthetic drug with a high alveolar concentration that can rapidly balance blood and brain. Sevoflurane with Desflurane has higher absorption capacity than most volatile anesthetic drugs. In general, recovery from anesthesia occurs quickly and calmly. Therefore, it is a preferred drug when long-term anesthesia is desired. Sevoflurane is similar to isoflurane in many ways. Effects on cardiovascular system: similar to isoflurane. Arterial blood pressure and systemic vascular resistance may vary depending on the dose. In addition, depression may occur in the myocardium depending on the dose, and cardiac output may be reduced in a preferential manner from isoflurane. The degree of changes in sevoflurane

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anesthesia results is not different from that of isoflurane anesthesia. It was found that it is very similar in terms of effects on CVS in isoflurane and sevoflurane anesthesia administered under controlled ventilation. When compared with sevoflurane, desflurane and isoflurane, the number of heart beats per minute is lower; no decrease in systemic vascular resistance is observed. Myocardial perfusion and myocardial oxygen consumption are decreased in sevoflurane anesthesia, but it does not cause coronary flow loss although it decreases coronary vascular resistance. Effects on respiratory system: In all animals with spontaneous respiration, other volatile anesthetic drugs such as sevoflurane cause respiratory depression when concentration is increased. Sevoflurane anesthesia does not cause respiratory irritation. It is similar to isoflurane due to its effect on preventing bronchospasm. In dogs with rapid induction, sevoflurane has less irritation to respiratory mucosa than isoflurane. Changes in hemodynamic parameters of sevoflurane and isoflurane in controlled anesthesia are very similar. In induction of sevoflurane in dogs of large breed dogs,  $5.7 \pm 1.6$  minutes, in the isoflurane group;  $8.6 \pm 2.6$  minutes. Effects on nervous system: Sevoflurane, like other volatile anesthetics, depresses CNS in a dose-dependent manner. It does

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not cause electrophysiological changes in the nervous system. However, it does not cause epileptic activations. Changes in blood flow in brain and changes in intracranial pressure are similar to isoflurane. High concentrations of sevoflurane may increase intracranial pressure. However, most studies have shown that this effect is minimal. Rapid exit from sevoflurane anesthesia and the rapid awakening of anesthesia by providing hypocapnia enables the safe use of sevoflurane in neurosurgery.

**Biotransformation:** Sevoflurane is metabolized by liver microsomal enzymes. This rate is 2%. Hexofluoroisopropanol and inorganic fluoride, the metabolites of sevoflurane, are nephrotoxic in humans; Although it was used in rats and dogs, it was observed that serum fluoride concentration did not reach the nephrotoxic value of 50 mmol / L.