

Verification of the Necessity of Maintenance Anesthesia with Isoflurane after Induction with Tiletamine-Zolazepam in Dogs Using the Dixon's up-and-down Method

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Abstract : Isoflurane is one of the most commonly used anaesthetic gases in veterinary medicine. Due to its numerous side effects, intravenous anaesthesia is more often used. The combination of tiletamine with zolazepam has proved to be a safe and pharmacologically beneficial combination. Analgesic effect, fast induction time, effective myorelaxation, and smooth recovery are the main advantages of this combination of drugs. In the following study, the authors verified the necessity of isoflurane to maintain anaesthesia in dogs after the use of tiletamine-zolazepam for induction. 12 dogs were selected to the group with the inclusion criteria: ASA (American Society of Anaesthesiology) I or II. Each dog received premedication intramuscularly with medetomidine-butorfanol (10 µg/kg, 0,1 mg/kg respectively). 15 minutes from premedication, preoxygenation lasting 5 minutes was started. Anaesthesia was induced with tiletamine-zolazepam at the dose of 5 mg/kg. Then the dogs were intubated and anaesthesia was maintained with isoflurane. Initially, MAC (Minimum Alveolar Concentration) was set to 0.7 vol.%. After 15 minutes equilibration, MAC was determined using Dixon's up-and-down method. Painful stimulation including compressions of paw pad, phalange, groin area, and clamping Backhaus on skin. Hemodynamic and ventilation parameters were measured and noted in 2 minutes intervals. In this method, the positive or negative response to the noxious stimulus is estimated and then used to determine the concentration of isoflurane for next patient. The response is only assessed once in each patient. The results show that isoflurane is not necessary to maintain anaesthesia after tiletamine-zolazepam induction. This is clinically important because the side effects resulting from using isoflurane are eliminated.

Keywords : anaesthesia, dog, Isoflurane, The Dixon's up-and-down method, Tiletamine, Zolazepam

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