ALFAXALONE ANESTHESIA IN VEILED CHAMELEON, *Chamaeleo calyptratus*

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**ABSTRACT:** After premedication by butorphanol (2 mg/kg) and meloxicam (1 mg/kg) alfaxalone (5 mg/kg IV) was administered to 30 adult veiled chameleons (*Chamaeleo calyptratus*). The induction time was 36.27 ± 19.83 s, a surgical plane of anesthesia was achieved after 2 minutes (121.67 ± 18.80 s) and lasted for 5 - 10 minutes. Full activity was restored 20.30 ± 5.10 minutes after the initial alfaxalone injection. Alfaxalone proved to be suitable form of short anesthesia in veiled chameleons.

**KEY WORDS:** reptile anesthesia, lizards, sedation

**INTRODUCTION**

Alfaxalone (3-α-hydroxy-5-α-pregnane-11,20-dione) represents a veterinary alternative of drugs used for controlled sedation or anesthesia (Leece et al., 2009). To date, alfaxalone has been tested mainly in mammals where the administration of high doses can be associated with certain complications. Adverse effects of alfaxalone include temporary hypotension, while higher doses may result in prolonged apnea. Only a few clinical studies on the use of alfaxalone in reptiles have been published (Carmel, 2002; Simpson, 2004; Scheelings et al., 2010). These studies vary both in the amount of recommended dose and the description of clinical signs observed in reptiles. The aim of this project was to evaluate short-term intravenous anesthesia with alfaxalone in healthy veiled chameleons kept experimentally.

**MATERIALS AND METHODS**

The clinical research was performed with a group of 30 veiled chameleons (*Chamaeleo calyptratus*) aged 7 to 28 months, with an average weight of 121.70 ± 56.15 kg, that were housed at the Avian and Exotic Animal Clinic. The animals were housed and handled with the agreement of the Branch Commission for Animal Welfare of the Ministry of Agriculture of the Czech Republic (accreditation No. 46613/2003-1020). Their health was evaluated by repeated clinical examinations and by evaluating blood profiles including full hematology and plasma chemistry. After fasting for 24 hours and about 30 minutes after pre-medication by butorphanol (2 mg/kg SC, Torbugesic, Fort-Dodge, USA) and meloxicam (1 mg/kg SC, Metacam, Boehringer-Ingelheim, Germany) the chameleons were anesthetized using alfaxalone (Alfaxan® 10 mg/ml; Vétoquinol, France) as a bolus dose of 5 mg/kg via the ventral caudal vein. The
lizards were placed on an electric heating pad (Bosch PFP 1031; Bosch, Czech Republic) kept at 37.5 °C. Selected clinical parameters were continuously recorded including: loss of righting reflex, loss of deep pain sensation, return of deep pain sensation, time of full recovery. The level of skin sensitivity was monitored by gently touching the skin on the pelvic limbs while deep pain sensation was judged by the toe-pincher reflex on the pelvic limb. The time from the injection of alfaxalone to the loss of the righting reflex was recorded as induction time. The time from the administration of alfaxalone to the restoration of the righting reflex and voluntary movement was recorded as the time of full recovery.

RESULTS

After the intravenous administration of alfaxalone the righting reflex was usually lost within one minute (36.27 ± 19.83 s). An endotracheal tube could be inserted within 1-2 minutes (69.62 ± 37.03 s). A surgical plane of anesthesia was achieved after two minutes (121.67 ± 18.80 s) and lasted for 5 - 10 minutes; full activity was restored 20 minutes after the initial injection of alfaxalone (20.30 ± 5.10 min).

DISCUSSION

In published studies conducted on the use of alfaxalone in reptiles there is considerable variation in recommended dose rates and degree of anesthetic monitoring. However, several studies describe a reliable induction of anesthesia with the loss of deep pain sensation within two minutes after intravenous administration of alfaxalone at the dose rate of 2-4 mg/kg and, subsequently, full restoration of activity 10 to 30 minutes later (Carmel, 2002; Simpson, 2004). In agamids (dragon lizards) alfaxalone was used at a dose rate of 5 mg/kg when the opioid analgesic butorphanol was administered 30 minutes before alfaxalone application. This combination was followed with a smooth recovery of reptile patients (Johnson, 2005). On the other hand, satisfactory anesthesia was not achieved after administration of alfaxalone alone at a dose of 9 mg/kg in a study on Australian lizard species, although in most of them (except for blotched bluetongue lizards) an endotracheal tube could be inserted (Scheelings et al., 2010). In 30 healthy veiled chameleons alfaxalone administered intravenous at a dose rate of 5 mg/kg did not affect basic physiologic functions. The loss of deep sensitivity persisted from 2 to 5-10 minutes after alfaxalone application, while full activity was restored 20.30 ± 5.10 minutes after alfaxalone application. An endotracheal tube could be inserted in all 30 lizards. Considering that injectable anesthetic agents are usually used in reptiles at lower doses in order to facilitate endotracheal intubation and ensure safe and easy induction of inhalation anesthesia the use of alfaxalone can be recommended in chameleons. Alfaxalone administered at a dose of 5 mg/kg IV in healthy veiled chameleons enabled endotracheal intubation and proved to be a safe and reliable form of short-term anesthesia.

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REFERENCES


