Clinical aspects of alfaxalone use in rabbits. Partial results.

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INTRODUCTION

Alfaxan is registered for the use in dogs and cats but has extensively been used in a wide variety of animal species such as sheep, horses, marmosets, and reptiles. Alfaxalone has also been tested as an intramuscular and intravenous induction agent in premedicated rabbits where it turned out to provoke smooth inductions and uneventful recoveries when anesthesia was maintained by administration of isoflurane in oxygen, either via facemask or via an endotracheal tube. The safety and comfort of alfaxalone would made this drug a perfect anesthetic for short interventions like e.g. imaging, dental care or stomach lavages in general veterinary practice as well as experimental procedure where inhalation anesthesia is not an option. The aim of this study was to test whether alfaxalone could be used as an induction agent in rabbits that are spontaneously breathing room air without producing severe hypoxemia.

All procedures were in accordance with the institutional guidelines for the care of laboratory animals and approved by the local committee for the use of animals. Seven healthy, young adult, female New Zealand rabbits were used for the study. Feed and water were not withheld prior to anaesthesia.

MATERIALS & METHODS

ANESTHETIC PROTOCOL

- Premedication: fentanyl (0.0125 mg.kg^{-1} IM) & droperidol (0.625 mg.kg^{-1} IM)
- Induction: alfaxalone (3 mg.kg $^{-1}$ CRI over 60˝ IV)
- Maintenance: air breathing

RESPIRATORY FUNCTION EVALUATION (figure 1)

- duration of the post-induction **apnoea**;
- **respiratory rate**;
- **oxygen saturation of haemoglobin** in the peripheral blood (SpO_2);
- **end-tidal CO_2** ($EtCO_2$).

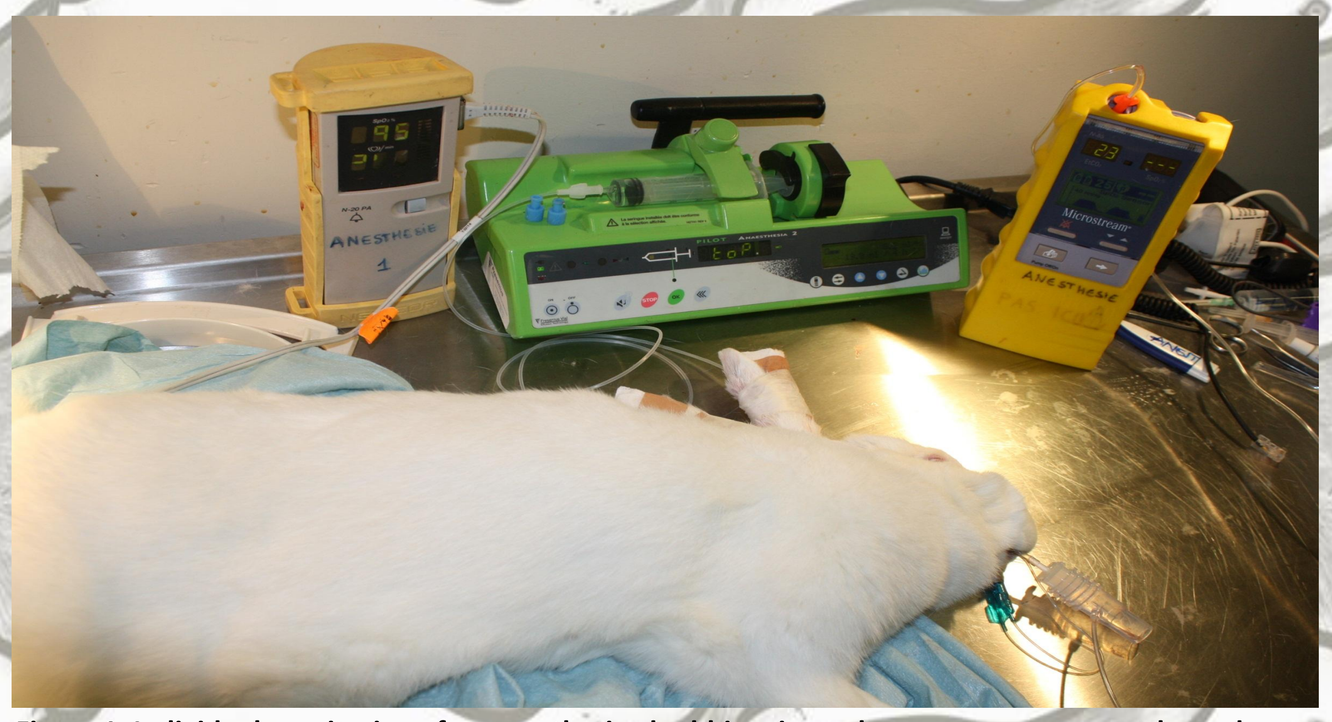

Figure 1. Individual monitoring of an anesthetized rabbit using pulsoxymetry, capnography and clinical assessment.

Results I

The premedication enabled the comfortable placement of the catheter into the lateral auricular vein. Premedication induced slight sedation in all rabbits. In all rabbits induction was obtained towards the end of the 60 seconds lasting injection of alfaxalone administration. Quality of induction was good in all seven rabbits without any excitation. All intubations were done using the blind technique by the same person and success of intubation was confirmed by positive capnographic readings. Intubation was quick and easy in all rabbits. One rabbit showed coughing during intubation.

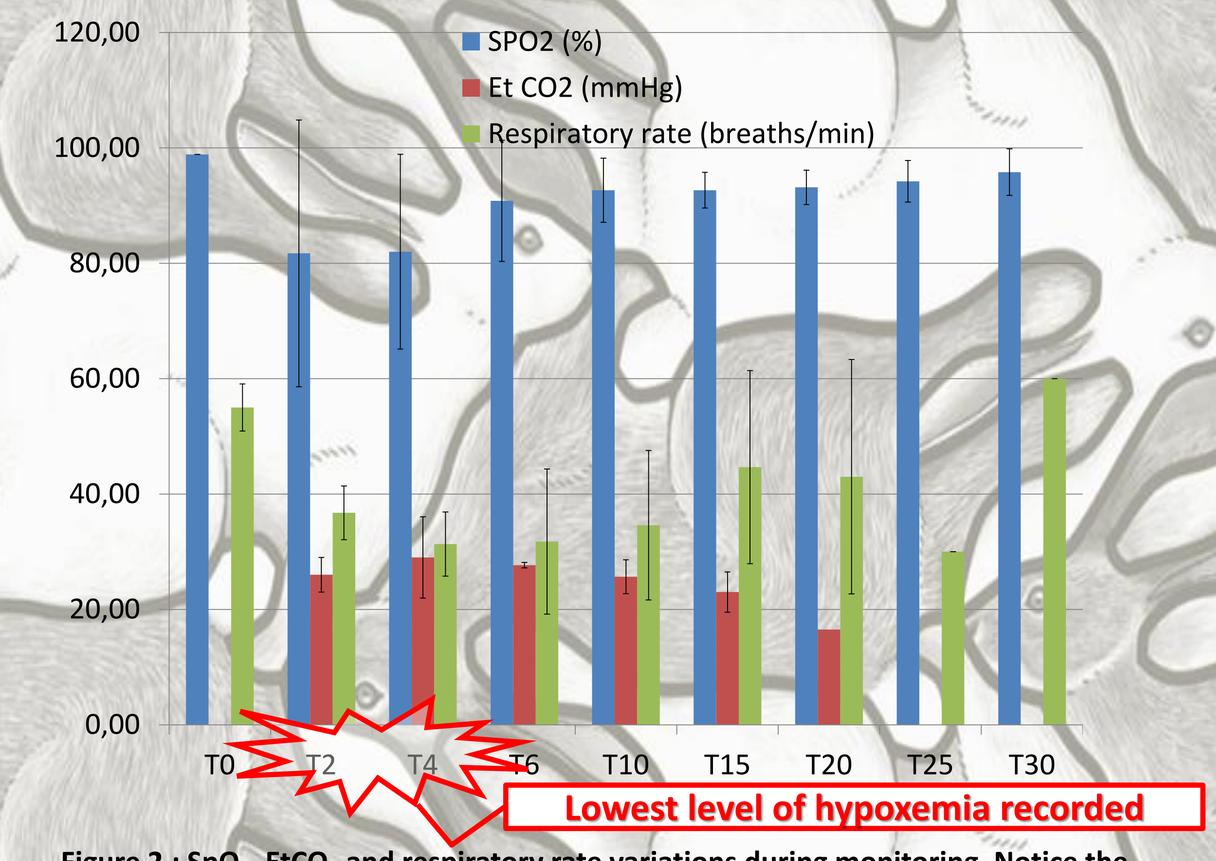

Figure 2.: SpO_2, $EtCO_2$ and respiratory rate variations during monitoring. Notice the respiratory depression at minute 2 and 4 after induction with alfaxalone 3mg.kg $^{-1}$

Results II (figure 2)

The mean respiratory rate of the rabbits was 39 breaths minute^{-1} (range: 16-65). Two rabbits showed apnea after induction.

Oxygen saturation (SpO2) had a mean value of 91% (range: 42-100). Although mean oxygen saturation was 82% at minute 2 and 4, five of them had values lower then 80%.

Mean end tidal CO2 ($EtCO_2$) was 24.8 mmHg (range: 13-37).

Mean heart rate was 198 beats minute^{-1} (range: 115-300) with the lowest value at minute 4 after induction.

CONCLUSION

Alfaxalone might be useful as induction agent or as a mono anesthetic for short term non painful interventions. However, the individual dose should be adapted to the patient's demand, as the reaction to a standard dose greatly varied among the animals studied.

The goal of this study was to verify that alfaxalone can be used safely as an induction agent without producing severe hypoxia. Our conclusion is that alfaxalone may produce profound hypoxemia and therefore it should not be used in rabbits without oxygen support.

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