Use of Alfaxan® in sighthounds

INDICATIONS: Alfaxan® is indicated for the induction and maintenance of anesthesia and for induction of anesthesia followed by maintenance with an inhalant anesthetic, in cats and dogs.

Important Alfaxan® Risk Information: Warnings, Precautions and Contraindications: When using alfaxalone, patients should be continuously monitored, and facilities for the maintenance of a patent airway, artificial ventilation, and oxygen supplementation must be immediately available. Alfaxan® does not contain an antimicrobial preservative. Do not use if contamination is suspected. Strict aseptic techniques must be maintained because the vehicle is capable of supporting the rapid growth of microorganisms. Careful monitoring of the patient is necessary due to possibility of rapid arousal. Alfaxan® is contraindicated in cats and dogs with a known sensitivity to alfaxalone or its components, or when general anesthesia and/or sedation are contraindicated. Adverse Reactions: The most common side effects of alfaxalone include respiratory and cardiovascular derangements, such as apnea, hypotension and hypertension. Appropriate analgesia should be provided for painful procedures.

For more information contact:
Jurox Inc.
American Century Tower II,
4520 Main Street,
Kansas City, MO 64111
Enquiries +1-844-ALFAXAN
alfaxan@jurox.com

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Repeatable. Reliable. Relax.
Use of Alfaxan® in sighthounds

Among the canine population sighthounds have demonstrated idiosyncratic responses to various anesthetic agents when compared to other breeds.

A study was undertaken to determine the pharmacokinetics/pharmacodynamics of alfaxalone, the active ingredient of Alfaxan® when administered at the recommended dose to Greyhounds with or without premedication. The results were compared with similar work completed in Beagle dogs.

Materials and methods

Eight healthy Greyhound dogs, four males and four females, were administered Alfaxan® at the recommended dose of 2 mg/kg in a balanced cross-over design.

Blood samples were taken prior to, and at designated time points for a period of 8 hours after, Alfaxan® administration. The plasma concentration of alfaxalone was analysed using Liquid Chromatography and Mass Spectrometry.

The pharmacokinetic parameters were then estimated by compartmental analysis.

The parameters examined were the elimination half-life ($t_{1/2}$), total clearance ($Cl$), volume of distribution in the central vascular compartment ($V_c$) and volume of distribution at steady state ($V_{ss}$).

The concentration of alfaxalone in the plasma over time was also recorded for each animal and compared with that for eight Beagle dogs given the same dose of Alfaxan®.

The duration of anesthesia was also recorded for all dogs and compared with that obtained when eight Beagle dogs were administered the same dose of Alfaxan®.

Results

Table 1: Pharmacokinetic/pharmacodynamic estimates for alfaxalone in 8 Greyhound and 8 Beagle dogs administered Alfaxan® at 2 mg/kg (8 dogs per group).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Greyhounds – premedicated</th>
<th>Greyhounds – not premedicated</th>
<th>Beagles</th>
</tr>
</thead>
<tbody>
<tr>
<td>$t_{1/2}$ (min.)</td>
<td>38.2 ± 5.6</td>
<td>33.1 ± 3.5</td>
<td>24.0 ± 1.9</td>
</tr>
<tr>
<td>$Cl$ (mL/kg/min.)</td>
<td>38.0 ± 8.2</td>
<td>48.6 ± 21.9</td>
<td>59.4 ± 12.9</td>
</tr>
<tr>
<td>$V_c$ (L/kg)</td>
<td>0.5 ± 0.3</td>
<td>1.1 ± 0.3</td>
<td>n/a</td>
</tr>
<tr>
<td>$V_{ss}$ (L/kg)</td>
<td>1.8 ± 0.6</td>
<td>2.1 ± 0.9</td>
<td>2.4 ± 1.9</td>
</tr>
<tr>
<td>Duration of anesthesia (min.)</td>
<td>35.0 ± 9.0</td>
<td>7.1 ± 1.7</td>
<td>6.4 ± 2.9</td>
</tr>
</tbody>
</table>

Conclusion

Alfaxan® administered to Greyhounds at 2 mg/kg over a 60 second period proved safe and effective.

The duration of anesthesia seen in Greyhounds administered Alfaxan® was similar to that observed in Beagles and other dog breeds (approx. 7 minutes).

When Greyhounds were premedicated with a mixture of morphine and acepromazine prior to induction with Alfaxan®, the duration of anesthesia was significantly lengthened (approx. 35 minutes).

The volume of distribution in the central compartment ($V_c$) in premedicated Greyhounds was less than when premedication was not used, which may partially explain why premedicated dogs require less anesthetic.

Reference

Pasloske, K., Sauer, B., Greenwood, J. and Whittem, T., Study JX9604.03-L022. Plasma Pharmacokinetics and Safety of Alfaxalone in Greyhound Dogs Premedicated With or Without Acepromazine and Morphine after a Single Dose Intravenous Bolus of Alfaxan®-CD RTU at 2mg/kg Body Weight.
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The concentration of alfaxalone in the plasma over time was also recorded for each animal and compared with that for eight Beagle dogs given the same dose of Alfaxan®. The duration of anesthesia was also recorded for all dogs and compared with that obtained when eight Beagle dogs were administered the same dose of Alfaxan®.

**Results**

<table>
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</table>

Figure 1: Plasma concentration of alfaxalone (averaged) over time after administration of Alfaxan® to 8 Greyhound and 8 Beagle dogs.

**Conclusion**

Alfaxan® administered to Greyhounds at 2 mg/kg over a 60 second period proved safe and effective.

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The FOI for Alfaxan® (NADA#141-342) statement can be reviewed at:
http://www.fda.gov/downloads/AnimalVeterinary/Products/ApprovedAnimalDrugProducts/FOIADrugSummaries/UCM326904.pdf

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