**P7 The Antinociceptive Effects of Tramadol on the Thermal Threshold Response in Cats**

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### Introduction

Feline pain has been underestimated and under treated as a result of the difficulty in assessing pain and the fear of side effects of analgesics. Analgesic dosing has been extrapolated from other species because of the limited number of studies in cat (1). Tramadol, a synthetic analog of codeine, is a centrally acting opioid analgesic agent that has been used to manage pain in humans with a low incidence of adverse effects. The purpose of the study was to characterize the antinociceptive action of tramadol in cats using thermal threshold testing.

### Materials and Method

Thermal thresholds were measured in eight cats by a thermal threshold-testing device (2) which contained a heater element and temperature sensor placed on the shaved lateral thoracic area. The skin temperature and thermal threshold were measured and recorded by activation of the heater until the cat showed positive responses (e.g. skin flicks, turning and looking at the probe and jumping forwards). Each cat randomly received intramuscular administration of tramadol 2 mg/kg, morphine 0.2 mg/kg and saline 0.04 ml/kg with a week interval. The thermal threshold was measured at 15, 30, 45, 60, 90, 120, 150, 180, 210, 240, 270, 300, 330, 360, 480 and 720 minutes after the drugs administration by an observer unaware of the treatment.

### Results and Discussion

All cats tolerated well with repeated thermal stimuli well and continued normal activities (e.g. eating, drinking, urination, defecation, grooming, and playing) throughout the testing period.

### Table 1

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Thermal threshold (mean ± SD) over 12 hrs obtained from 8 cats after drugs administration.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basal</td>
<td>42.2 ± 0.9 °C</td>
</tr>
<tr>
<td>NSS</td>
<td>42.0 ± 0.5 °C</td>
</tr>
<tr>
<td>Tramadol</td>
<td>44.2 ± 1.6 °C*</td>
</tr>
<tr>
<td>Morphine</td>
<td>43.2 ± 0.9 °C</td>
</tr>
</tbody>
</table>

*Significant difference when compared to NSS

### Figure 1

Mean thermal temperature (°C) obtained from 8 cats during thermal threshold testing.

The thermal threshold system has proved effective for the assessment of the analgesic effect of many opioids in cats and is relevant to clinical practice. Both tramadol and morphine increased the thermal threshold. Therefore, tramadol may possibly have a good clinical analgesic effect. But some studies have show that cats may show marked variations in their analgesic response to opioids (3). Further pharmacokinetic, pharmacodynamic and clinical studies of tramadol should be investigated.

### References