Effect of Tramadol on Isoflurane Concentration During Surgery in Cats

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Introduction

The administration of opioids to cats may result in some excitement, especially in non-painful cats given a pure µ-agonist. However, recent studies have shown that tramadol is a centrally acting opioid analgesic drug that has been used to manage pain in humans with a low incidence of adverse effects (1, 2). The aim of the study is to evaluate the intraoperative analgesic effect of tramadol and in cats.

Materials and Methods

This study was approved by the Animal Care and Use Committee of Chulalongkorn University. Twenty healthy adult female cats scheduled for ovariohysterectomy were studied. All cats were randomly allocated into two groups. Control group received acepromazine 0.05 mg/kg and morphine 0.5 mg/kg IM. Treatment group received acepromazine 0.05 mg/kg and tramadol 5 mg/kg IM. Propofol IV to effect was used to induce and maintenance with isoflurane. Monitoring of anesthesia was performed by same anesthetist who unaware of the premedication. HR, RR, SpO₂, end tidal CO₂, end tidal isoflurane, and noninvasive blood pressure was monitored every 5 minutes throughout surgical procedure.

Results and Discussion

Both morphine and tramadol combined with acepromazine produced mild sedation in cats. No excitement was seen from this study. All vital parameters were not different in both groups. The anesthetic duration and average end tidal isoflurane obtained from morphine and tramadol group shown in table and figures below.

<table>
<thead>
<tr>
<th>Mean ± SE</th>
<th>Morphine</th>
<th>Tramadol</th>
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<tbody>
<tr>
<td>Anesthetic duration (min)</td>
<td>39 ± 3.84</td>
<td>40.6 ± 3.35</td>
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<tr>
<td>End tidal isoflurane (%)</td>
<td>1.36 ± 0.12</td>
<td>1.39 ± 0.09</td>
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The minimal alveolar concentration (MAC) of isoflurane in cats is 2.21% (3). Both tramadol and morphine had sparing effects, since their average isoflurane requirement for surgery was lower than MAC value. In conclusion, tramadol, administered preemptively can be used safely in cat to control pain during ovariohysterectomy without adverse effects.

References