Rat Analgesia

Preparation:
- All injectable solutions should be prepared aseptically using 0.9% sterile saline in a sterile glass vial/red top tube.
- The solution must be labeled with the active drug, diluent, final concentration (mg/mL), expiration date, and initials.
  - Solutions are good for 30 days (if the expiration date noted on the original agents is less than 30 days then note that date as the expiration date).
  - If a precipitate forms, discard the solution regardless of expiration date.

Procedure:
- Analgesia should be provided pre-emptively whenever possible.
  - Water bottle dosing should be initiated 24 prior to procedure.
  - Water intake should be monitored when NSAIDs are administered solely by water bottle.
  - Chart on page two provides dosing guidelines by body weight.
- NSAID (COX2 selective provides for analgesia, antipyretic, and anti-inflammatory effects)
  - Carprofen (stock needs to be refrigerated, diluted drug can remain at room temperature for 28 days)
    - Injectable – 5mg/kg SC or IP, BID to SID
      - 0.2mL Carprofen (50 mg/mL) + 3.8 mL sterile saline = 2.5 mg/mL solution.
    - Clear H2O gel formulation
      - 1-2 oz cup/2 rats provided 24-48 hours in advance of surgery
      - Provides 5mg/kg/day
      - Replace as needed (every 2-3 days).
  - Meloxicam (1.5 mg/mL oral suspension or 5 mg/mL injectable solution)
    - Oral Dosing – 2 mg/kg, PO, SID
    - Injectable – 2 mg/kg, SC, SID
    - Bacon Flavored Tablet 0.25mg/tablet (from bio-serve)
      - Give 1 tablet/rat/day
      - Provides 0.8 mg/kg for a 300g rat
  - NSAID (non-selective, propionate acid derivatives provide for analgesia, antipyretic, and anti-inflammatory effects)
    - Ibuprofen (Children’s Motrin Suspension – 100 mg/5mL)
      - Water Bottle:
        - 5 mL Children’s Motrin + 500 mL water = 0.2 mg/mL solution
        - Dose= 20 mg/kg for a 300g rat drinking 30 ml/day
        - Should be changed twice a week
      - Oral Dosing – 15 mg/kg given PO, BID to TID
- Opioid
  - Buprenorphine
    - Injectable – 0.05 mg/kg SC or IP, BID
    - Dilution: add 0.1 mL of Buprenex + 0.9 mL of sterile saline = 0.03 mg/mL solution.

Supplies:
1. Sterile Vial/Red Top Tube
2. Miscellaneous supplies as needed (22-25ga. Needles, 1-10mL syringes)
3. Alcohol swabs
4. 0.9% Sterile Saline
5. Rat water bottle filled with 500mL RO water
6. Children’s Motrin (Ibuprofen 100mg/5mL)
7. Rimadyl (Carprofen 50mg/mL)
8. Metacam Oral Formulation (meloxicam 1.5mg/mL)
9. Metacam Injectable (meloxicam 5mg/ml)
10. Meloxicam Tablets 0.25mg/tablet from Bio-Serve
11. Carprofen Clear H2O gel from Cincinnati labs
<table>
<thead>
<tr>
<th>Drug</th>
<th>100g</th>
<th>250g</th>
<th>500g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meloxicam – INJ (5 mg/mL)</td>
<td>Use inj or dilute</td>
<td>0.1 mL</td>
<td>0.2 mL</td>
</tr>
<tr>
<td>Meloxicam – Oral (1.5 mg/mL)</td>
<td>0.1</td>
<td>0.3 mL</td>
<td>0.7 mL</td>
</tr>
<tr>
<td>Ibuprofen – Oral (100 mg/ 5mL)</td>
<td>0.1 mL</td>
<td>0.2 mL</td>
<td>0.4 mL</td>
</tr>
<tr>
<td>Carprofen – INJ (Diluted 2.5 mg/mL)</td>
<td>0.2 mL</td>
<td>0.5 mL</td>
<td>1.0 mL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drug</th>
<th>150-200g</th>
<th>210-260g</th>
<th>270-320 g</th>
<th>330-380g</th>
<th>390-430g</th>
<th>450-500g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buprenorphine – INJ (Diluted 0.03 mg/mL)</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
<td>0.6</td>
<td>0.7</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Volumes rounded up to nearest 1/10th of mL

REFERENCES:

- Formulary for Laboratory Animals- third edition, Hawk et al, 2005
- Guidelines for the Assessment and Management of Pain in Rodents and Rabbits. ACLAM position statement.
- Vet Guideline 13-004 Controlled Substances
- Ferrets, Rabbits, and Rodents Clinical Medicine and Surgery, 2nd edition, Quesenberry and Carpenter, 2004*