

Merkblatt 04/2015: Analgesie Buprenorphin Ratte

Stand: Version von 27. April 2015* [MA non-GLP]

*ersetzt Version von 03. September 2013.

Pain treatment with Buprenorphine in rats

Preliminary remarks

Buprenorphine is administered subcutaneously for peri-operative pain relief. Dosage and number of applications depend on the severity of the intervention and on the expected amount of pain after the intervention. Both should be adjusted individually for each operation.

Based on bibliographical references and clinical experiences we assume that Buprenorphine has an analgesic effect of 4-8 hours in rats.

Dosage and application interval

Buprenorphine can be given before, during or after the operation. The postoperative application is administered directly after the intervention, when the animal wakes up from anaesthesia and starts lifting the head.

Recommendation of dosage for Buprenorphine is 0,05 - 0,1 mg/kg body weight.

Preparing the solution for injection:

1 ml Temgesic® (Buprenorphine 0,3 mg/ml) is diluted in 5 ml 0,9% NaCl. From this solution 1-2 µl/g body weight are administered subcutaneously every 6 - 8 hours. After surgeries with expected medium-severe or severe pain Buprenorphine should be given subcutaneously at least twice every 4 - 6 hours on the same day of the intervention.

Depending on the severity of the intervention continued pain treatment during the night can be necessary. In this case Buprenorphine can be given orally over the drinking water instead of subcutaneous applications.

Standard dosage for medium severe interventions: 2 ml Temgesic® (Buprenorphine 0.3 mg/ml) are diluted in 120 ml drinking water.

After severe interventions it might be necessary to increase the dosage. For better acceptance glucose can be added to the water.

The morning after the intervention the Buprenorphine-enriched drinking water is exchanged for normal drinking water. During the day Buprenorphine is given subcutaneously every 6 - 8 hours. Overnight Buprenorphine can again be administered via the drinking water. Depending on the severity of the intervention Buprenorphine can be administered up to three days either subcutaneously or orally.

Adverse effects

After administration of Buprenorphine food intake might be decreased and locomotor activity might be increased in rats.

In rats the so-called Pica-Behaviour can occur, viz. the animals ingest various, noxious materials in their environment such as bedding, tissues, cardboard, enrichment material etc. It is assumed that also intense manipulation on the wound site (such as removal of sutures or clips) can possibly be linked to the administration of Buprenorphine.

Both Pica-Behaviour and also distinct restlessness and reopening of surgical wound sites apparently could be observed especially after high dosages of Buprenorphine. Those behaviours could also occur temporarily after subcutaneous injections of appropriate dosages (peaks).

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Diagram Rat

<i>Rat</i>	<i>Preparation of the solution</i>	<i>Dosage and application interval</i>
Buprenorphine Solution for subcutaneous injection	1 ml Temgesic® (Buprenorphine 0,3 mg/ml) + 5 ml NaCl	1 - 2 µl/g body weight = 0,05 - 0,1 mg/kg BW subcutaneous injection 2-3 times during the day every 6-8 hours at the day of surgery if necessary every 4 hours
Buprenorphine Oral application	2 ml Temgesic® (Buprenorphine 0,3 mg/ml) + 120 ml drinking water or 6 ml Temgesic® (Buprenorphine 0,3 mg/ml) + 360 ml drinking water + 10 ml Glucose 5%	