



SOCIETÀ ITALIANA DELLE SCIENZE VETERINARIE



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EDIFICIO 19

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Viale delle Scienze

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EFFECTIVENESS OF LIDOCAINE PERITONEAL LAVAGE FOR POST-OPERATIVE PAIN CONTROL IN DOGS UNDERGOING LAPAROTOMY: PRELIMINAR STUDY

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Lidocaine is an antiarrhythmic agent and a local anaesthetic. Overdose of this drug can cause cardiac and nervous toxicities (Plumb, 2002). Lidocaine could also be used off-label in patients undergoing abdominal surgery to provide post-operative analgesia (Willis & Hunt, 2000; Carpenter et al., 2004).

The aim of the study was to evaluate the clinical efficacy of peritoneal lavage with lidocaine for providing post-operative pain relief in dogs undergoing laparotomy. For this procedure lidocaine was administered off-label.

Sixteen client-owned dogs of different breed, gender, age (1–12 years) and weight (4–37.4 kg) scheduled for surgical laparotomy were enrolled. Inclusion criteria were ASA status classification ≤III based on hematologic and physical examination and absence of cardiovascular diseases. Patients were randomly divided in two groups: SAL group (no.=8), peritoneal lavage with saline and drying, and IPL group (no.=8), peritoneal lavage with lidocaine solution and drying.

All subjects received a common premedication: intramuscular (IM) methadone 0.2 mg/kg and dexmedetomidine 5 µg/kg; induction: intravenous propofol to effect and maintenance: isoflurane in 100% oxygen to effect.

Immediately before closure of the abdominal wall, a peritoneal lavage was performed. In SAL group, irrigation of the abdominal cavity was achieved with 500 mL of saline 0.9%, followed by aspiration of the liquid and abdominal wall closure. In IPL group, a peritoneal lavage with local anaesthetic solution, including 200 mg of lidocaine 2% dissolved in 500 mL of saline 0.9% was performed. For dogs within 10 kg, volumes of saline or lidocaine solution were of 50 mL/kg. The lavage remained in the abdominal cavity for three minutes; it was then aspirated before abdominal wall suture. Pain level of patients was

evaluated in the following six hours by a single operator through the “Glasgow Composite Measure Pain Scale – Short Form (GCMPS – SF)” (Reid et al., 2007); scale scores between 0 and 24 were considered. Scores ≥ 8 were selected as cut-off for administration of “rescue” analgesia, representing treatment failure. Statistical analysis was performed with Mann-Whitney U test. Already in the first 45 minutes of evaluation SAL group showed a percentage of treatment failure of 100%. In IPL group there was only a treatment failure at 180 minutes, representing a percentage of 12.5% that remained constant until the end of the observation period. During the entire study no adverse effects were detected. Peritoneal lavage with diluted lidocaine solution is very effective in immediate post-operative pain relief (6 hours) in dogs undergoing laparotomy. However pharmacokinetic and clinical studies, are necessary to describe lidocaine absorption after peritoneal lavage, compare short- and long-acting local anaesthetics (i.e. bupivacaine and ropivacaine) in order to increase the research data.

1. Carpenter RE et al. (2004). *Vet Anaesth Analg*; Jan, 31(1): 46-52
2. Willis VL and Hunt DR (2000). *Br J Surg*; 87: 273-284
3. Plumb DC (2002): Lidocaine HCl. In *Veterinary Drugs Handbook*, 4th Edition, Iowa State Press/Ames
4. Reid Jet al. (2007). *Animal Welfare*; 16(S): 97-104