LIDOCAINE COSTANT RATE INFUSION FOR SURGICAL ANALGESIA IN DOGS

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Lidocaine is a popular local anaesthetic also extensively used by IV route for treating ventricular arrhythmias. Thanks to its hypnotic and analgesic effects, more recently Lidocaine has been utilized in veterinary medicine for inducing systemic analgesia by Constant Rate Infusion (CRI).

Reported advantages following IV administration of Lidocaine include systemic pre- intra- and post- operative analgesia (4, 5), general anaesthetics sparing effect (1, 2, 3), anti-inflammatory effects, cardiac eurhythmic effects, scavenging of Reactive Oxygen Species (ROS), and dog-fitting pharmacokinetics and pharmacodynamics (6). In humans, systemic Lidocaine is known to prevent reperfusion dysrhythmias after treatment of myocardial infarction or prolonged
clamping of the abdominal aorta, while in trauma patients it acts as an anti-oxidant and inflammatory modulator useful in preventing reperfusion injury (7). In dogs, the analgesic and anaesthetic sparing effects of Lidocaine CRI have been favourably compared to Opioids by CRI. Its use by CRI to reduce Isoflurane requirements in cats is not recommended because of cardiovascular depression (8).

This paper summarizes current knowledge about Lidocaine CRI, reporting the last decade clinical experience in dog surgery at the Veterinary School of the University of Naples.

The Authors support the use of Lidocaine for preventive and multimodal analgesia in dogs, highlighting its powerful analgesic action and the beneficial effects on systemic response and cardiovascular performance making it an effective option in high risk patients undergoing general anaesthesia.

1) A. Valverde et al., Effect of lidocaine on the minimum alveolar concentration of isoflurane in dogs; Vet. Anaesthesia and Analgesia, 2003;

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3) C. T. Jolliffe et al., Effect of intravenous lidocaine on heart rate, systolic arterial blood pressure and cough responses to endotracheal intubation in propofol-anaesthetized dogs; Journal Compilation 2007 Association of Veterinary Anaesthetists; 4) L. Smith et al., Morphine or lidocaine infusion as a pre-emptive analgesic for intraocular surgery in dogs; Blackwell Science Ltd, 2001;

6) A. N. De Moraes et al., Plasma Concentrations and Cardiovascular Influence of Lidocaine Infusions During Isoflurane Anesthesia in Healthy Dogs and Dogs With Subaortic Stenosis Vet. Anaesthesia and Analgesia 1998;