VENTILATORY EFFECTS OF CONTINUOUS RATE INFUSION OF LIDOCAINE IN ISOFLURANE-ANESTHETIZED CALVES UNDER MECHANICAL VENTILATION: PRELIMINARY RESULTS

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Objective: To determine the ventilatory effects of continuous rate infusion of lidocaine in isoflurane-anesthetized calves under mechanical ventilation.

Materials and methods: Four healthy male Holstein calves aged 10 ± 1 month and weighing 115 ± 15 kg were used. The animals were premedicated with xylazine (0.05 mg kg⁻¹ IV). After fifteen minutes, ketamine (2.0 mg kg⁻¹ IV) and midazolam (0.1 mg kg⁻¹ IV) were used for induction. Immediately, the calves were positioned in right lateral recumbency and anesthesia was maintained with isoflurane at a constant end-tidal concentration of 1.3% and a intermittent positive pressure ventilation was adjusted for a peak inspiratory airway pressure of 15 cm H₂O and respiratory rate (fR) of 6 breaths min⁻¹. Then, after forty minutes, in order to allow instrumentation and anesthetic stabilization, lidocaine (2.0 mg kg⁻¹) was given intravenous followed by a continuous rate infusion (100 µg kg⁻¹ min⁻¹) in the lidocaine group (LG). In the control group (CG) the same methodology was applied, substituting lidocaine for an equal volume of saline. Measurements for heart rate (HR), mean arterial pressure (MAP), inspired oxygen fraction (FiO₂), expired tidal volume (V₉T), expired minute volume (VₑM), airway resistance (Raw), dynamic complacency (Cdyn), arterial blood pH, arterial partial pressures of oxygen (PaO₂), arterial partial pressures of carbon dioxide (PaCO₂), arterial hemoglobin saturation (SaO₂), base excess (BE) and bicarbonate concentration (HCO₃⁻) were recorded before lidocaine or saline administration (T₀), and then at 20-minutes intervals after treatment (T₂₀ to T₈₀). Data were submitted to repeated measures ANOVA following Tukey test (p< 0.05).

Results and discussion: There was no statistical difference between groups or times within each group for HR, MAP, FiO₂, V₉T, VₑM, Raw, Cdyn, pH, PaO₂, PaCO₂, HCO₃⁻ was lower in all times in the LG in relation to CG and BE was lower at T₈₀ in the LG in relation to CG. Despite of statistical difference observed with HCO₃⁻ and BE these results were not clinical relevant.

Conclusion: The results allow us to conclude that the continuous rate infusion of lidocaine in isoflurane anesthetized calves did not promoted important and clinical ventilatory alterations.

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