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DIPARTIMENTO DI SCIENZE VETERINARIE PER LA SALUTE, LA PRODUZIONE ANIMALE E LA SICUREZZA ALIMENTARE

Evaluation of an oral transmucosal administration of dexmedetomidine-butorphanol and dexmedetomidine-methadone in dogs

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Abstract

Oral transmucosal (OTM) delivery is a simple and painless method for sedative administration in veterinary medicine and allows a rapid absorption without a first-pass metabolism by the liver (Porters *et al*., 2014.). OTM is particularly useful in aggressive animals (Santos *et al*., 2010). The aim of this study is to evaluate the efficacy of the OTM route in dogs for sedative administration in comparison with intramuscular (IM) injection. 24 mixed-breed dogs undergoing soft tissue surgery or diagnostic procedures were randomly divided in 4 groups (n = 6): two groups received OTM administration of dexmedetomidine (10 µg/kg-1) together with butorphanol (0.2 mg/kg-1, BTF-OTM group) or methadone (0.2mg/kg-1, MTD-OTM group); two groups received intramuscular (IM) administration of dexmedetomidine (5 µg/kg-1) together with butorphanol (0.2 m/kg-1, BTF-IM group) or methadone (0.2 mg/kg-1, MTD-IM). Heart rate (HR), respiratory rate (RR), sedation score (Gruney *et al*., 2009) and side effects were recorded 10 (T10), 20 (T20) and 30 (T30) minutes after premedication. Induction was performed at T30 with titrate-to-effect propofol administration and the dosage required was recorded. At each time point BTF-IM group showed a statistically lower HR compared to BTF-OTM; RR was statistically lower at T10 in MTD-OTM group (21.33 ± 8.64 pm) compared to BTF-OTM (46.16 ± 17.98); Dogs in group MTD-IM reached a higher sedation scores at each time point compared to MTD-OTM. The induction dose of propofol appears comparable among groups. Marked vasoconstriction was observed after OTM administration, as probably related to α2-agonists use. Emesis and sialorrhea occurred in two subjects of MTD-OTM group while only one dog presented sialorrhea in BTF-OTM group. In conclusion, OTM administration appears effective and easy to perform; it takes a longer time to achieve a good sedation score, probably related to a gradual absorption of drugs that also leads to a more gradual hemodynamic effects.

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