

Abstract

Pain in animals has been defined as an aversive sensory experience which elicits protective motor actions, results in learned avoidance and may modify species specific traits of behaviour. It is important that the veterinarian, for humane reasons, recognises and alleviates pain, especially when dealing with surgical procedures that are being done solely for research purposes. Effective pain relief will result in less stress response of the animal, early ambulation and improved food intake; all of which contribute to the welfare of the animal. Inadequate postoperative pain relief can delay recovery and increase the incidence of adverse effects, such as delayed healing, lack of appetite and decreased immunity. The aim of this study was to evaluate analgesic and anesthetic effects of combination of ketamine and dexamethasone. Meanwhile clinically localized or systemic effects of epidural injection of ketamine and intravenous (IV) or epidural injections of dexamethasone were examined. The experiments were performed crossover method. After administration of 1 ml lidocaine 2% under the skin of lumbosacral region for local anesthesia, for group 1, 3 mg/kg of epidural Ketamin 10%,for group 2, 0.5 mg/kg of epidural dexamethasone plus 3mg/kg of epidural ketamin (injected separately) and for group 3, 0.5 mg/kg IV dexamethasone plus 3mg/kg epidural ketamine were administered. The respiratory rate, heart rate, rectal temperature, reaction to pain, sedation and motor block were recorded prior and 5, 10, 15, 20, 30, 45 and 60 minutes after injection. The results showed that mean respiratory rate were significant at onset time and 5, 10,15, 20, 30, 45 and 60 minutes after administration ($p < 0.05$). Heart rate in 5 minutes and rectal temperature in 5, 10 and 15 minutes after administration were statistically significant. There were not statistically significant difference in pain response, motor block and sedation after epidural and IV injection in any of the study groups ($p\text{-value} > 0.05$). The results of this study showed that epidural administration of dexamethasone and ketamine is not appropriate for pain management in surgery of the lower limbs and further research needs to be done in order to find the right drug combination and dosage for analgesic and anesthetic effect.

Key words: Dexamethasone, Ketamine, Epidural, Dog.



University of Zabol
Graduate School
Faculty of Veterinary Medicine
Department of Clinical Science

The Thesis Submitted for the Degree of DVM

**Clinical evaluation of epidural and
Intravenous injection of Dexamethasone and
Ketamine in dogs**

**Supervisor:
Dr. Mohammad Reza Aghchelou**

**Advisor:
Dr. Dariush Saadati**

**By:
Mohammad Reza Asadiyan**

September 2019