Comparison of analgesia provided by lidocaine or morphine delivered epidurally in rabbits undergoing hindlimb orthopedic surgery

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Abstract

The aim of the study was to compare anaesthesia protocol utilizing combination ketamine/medetomidine with epidural lidocaine or morphine to orthopaedic surgery in rabbits. All rabbits received intramuscularly medetomidine (0.5 mg/kg) and ketamine (20 mg/kg). In group L (n=13) epidural injection was performed with lidocaine (3 mg/kg) and in group M (n=13) with morphine (0.1 mg/kg) diluted with sterile saline to 0.6 ml. Rabbits underwent bilateral mosaicplasty surgery. Heart rate (HR), systolic (SBP), diastolic (DBP) and mean arterial blood pressure (MAP), arterial oxygen saturation (SpO₂) and respiratory rate (RR) were measured every 5 minute during surgical procedure. Duration of sensory blockade was measured based on toe pinch reflex and recorded.

Hemodynamic parameters were comparable at baseline in both groups. We did not observe significant differences in HR, RR, SBP, DBP, MAP between group L and M. Intragroup statistical analysis revealed differences at different time points in group M in terms of HR, SBP, DBP, MAP. In rabbits in group M blood pressure dropped while HR increased over time. In both groups a decrease in SpO₂ was observed. Mean duration of loss of the toe pinch reflex was similar between group L and M, and amounted to 72.79±34.48 and 82.80±17.85 minutes, respectively.

Key words: epidural anesthesia, intraoperative pain, lidocaine, morphine

Introduction

Rabbits (Oryctolagus cuniculus) are very common anaesthetic patients. A wide range of breeds are kept as pets. They are also widely used for biomedical research due to their low cost of sustenance, easy venous access and a number of anatomical and physiological characteristics that are useful for research (Brodbelt et al. 2008).

Despite progress in the safety of small animal anaesthesia, rabbits are still considered difficult to maintain under general anaesthesia. A study into anaesthetic-