Evaluation of medetomidine-midazolam-atropine (MeMiA) anesthesia maintained with propofol infusion in New Zealand White rabbits

D. Różańska

Department and Clinic of Animal Surgery, Faculty of Veterinary Medicine, University of Life Sciences in Lublin, Głęboka 30, 20-612, Lublin

Abstract

An anesthetic combination of medetomidine-midazolam-atropine and propofol was investigated in twenty New Zealand White rabbits. Each rabbit received combined medetomidine at a dosage of 0.2 mg/kg (b.w.), midazolam (0.5 mg/kg b.w.) and atropine (0.5 mg/kg b.w.) intramuscularly for induction of anesthesia. Propofol was administered intravenously – given to effect, and after that by an infusion pump to maintain anesthesia. The influence of the anesthetic combination on the cardiopulmonary system was evaluated by monitoring respiratory and heart rates, blood pressure, and arterial blood gas tensions.

The results obtained showed that propofol infusion at a rate of 0.5 mg/kg b.w./min maintained general anesthesia effectively with few side effects on the cardiopulmonary system during 30 minutes. However, slight hypotension, hypercapnia, and respiratory acidosis were associated with infusion of this anesthetic. The recovery of the rabbits from the anesthesia was smooth. Two rabbits died 20 to 24 hours after anesthesia.

In conclusion, an anesthetic combination with medetomidine-midazolam-atropine and propofol at the investigated doses was shown to be a safe method to induce and maintain general anesthesia enabling short-term surgical procedures in healthy animals.

Key words: rabbits, anesthesia, propofol, medetomidine, midazolam, infusion

Introduction

Rabbits are commonly used in a wide variety of experimental settings (Luo et al. 1995, Różańska et al. 2007). However, few safe and effective anesthesia regimens have been described for use in rabbits, partially because of their susceptibility to fatal respiratory depression (Hobbs et al. 1991), the narrower margin of safety of anesthetics in rabbits when compared with other animal species, and very wide interanimal variability (Peeters et al. 1988, De Mulder et al. 1997). Rabbits are also very sensitive to perioperative stress (Flecknell 1993, De Mulder et al. 1997, Różańska et al. 2007).

Inhalation anesthesia is commonly used in animals because of its uncomplicated procedure. Volatile an-