Capnography guided intubation in rabbits as an alternative to laryngoscope guided intubation

Lee LY, Ryu H, Tyler J, Han J, Lee I, Son WG

College of Veterinary Medicine, Western University of Health Sciences, Pomona, CA 91766 (Lee LY)
BK21 Program and Research Institute for Veterinary Science, College of Veterinary Medicine, Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul 151-742, Korea

Correspondence: Dr. Lyon Lee, E-mail: llyon@westernu.edu

Abstract

Rabbits present a unique challenge for routine endotracheal intubation, and often times the incomplete airway control limits safe and effective use of inhalant anesthesia both in clinical and research settings. Many previous works to facilitate ET intubation all have proved either to be tedious or require expensive equipments.

Capnography was utilized in order to evaluate its usefulness in intubating fifteen rabbits divided in three groups in equal number. Anesthesia was induced with combination of ketamine 10 mg/kg, medetomidine 30 mcg/kg and midazolam 0.2 mg/kg mixed in one syringe administered intramuscularly. Intubation was attempted by the same operator within five minutes following anesthetic administration with an experienced assistant held the animal’s jaw open. No laryngoscope was used in capnography guided intubation, and a cuffed ET tube with 4.5 mm ID was attached to mainstream capnograph (MC) or sidestream capnograph (SC). The third group underwent a laryngoscope guided (LG) intubation using 00 laryngeal blade attached. Time to successful intubation was set at the end of five successive capnogram while the tube was being tied around head, and the data was compared between groups using ANOVA with statistical significance set at p<0.05. Significantly different time was noted with 36 (+/- 23) seconds in MC group 149 (+/- 68) in SC group, and 394 (+/- 120) in LG group respectively. However, only three animals in LG group were intubated while all five animals in MC and SC groups were successfully intubated.

Capnography guided intubation can be a useful alternative technique in intubating rabbits, and both mainstream and sidestream capnograph could be successfully used. However, mainstream capnograph allowed quicker time in intubating the animals, and it is recommended over sidestream capnograph as the preferred choice whenever capnography guided intubation is attempted in rabbits and other species in similar settings.