

CLINICAL EVALUATION OF KETAMINE-PROPOFOL ANAESTHESIA IN DOG

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ABSTRACT

Propofol and ketamine are widely used in dogs however, both the drugs have certain limitations particularly when used singly. The effect of ketofol (ketamine+propofol) was studied in ten healthy dogs. All the animals were given ketofol I/V till effect for induction of anaesthesia and allowed to breathe room air. The quality of sedation and analgesia were satisfactory in all the animals. The heart rate, respiratory rate, rectal temperature and blood pressure were remained within the normal physiological limit. It was concluded that ketofol is safe for induction without any serious adverse affect on the normal physiological function.

KEYWORD : ketofol, dog, anaesthesia**INTRODUCTION**

Propofol is a commonly used agent for induction and maintenance of general anaesthesia in dog. Due to its rapid metabolism in the body propofol provides short duration anaesthesia with rapid induction and quick and smooth recovery. However, the analgesia is considered to be poor and it also causes cardiorespiratory depression as seen in other anaesthetic drug. Ketamine, a dissociative agent is also widely used in veterinary anaesthesia. It provides profound analgesia (Rogers *et al.*, 2004). Use of ketamine alone may lead to convulsion in dog. Combination of ketamine with propofol allows a reduction in the hypnotic dose of propofol and a decrease in the cardiovascular depression induced by this drug (Badrinath *et al.*, 2000), Shiju Simon *et al.* (2012) also used successfully ketamine in combination with xylaxine in corcodilians and found useful in minor surgical procedures like translocation.

Ketofol is a mixture of ketamine and propofol in 1:1 ratio, popular in medial anaesthesia for procedural sedation. The mixture of ketamine and propofol at this ratio is physically compatible and chemically stable for 3 hours (Donnelly *et al.*, 2008) at room temperature.

The present study was conducted to evaluate the clinical suitability of ketofol in dog based on the clinical and physiological parameters.

MATERIALS AND METHODS

The experiment was conducted on ten clinically healthy male dogs of different breeds weighing 14 – 18 kg, subjected for castration. All the dogs were fasted for 12 hours before anaesthesia and water was withheld for 2 hours before anaesthesia (Hall *et al.*, 2001). Propofol 10mg/ml and Ketamine 10mg/ml were mixed in sterile disposable syringe in 1:1 ratio. Anaesthesia was induced by injecting ketofol intravenously and the dogs were allowed to breathe room air. The induction time, induction behavior, induction dose, analgesia, muscle relaxation, duration of anaesthesia, recovery time, recovery behavior, heart rate, respiratory rate, rectal temperature and mean arterial pressure (MAP): $[(2 \times \text{diastolic}) + \text{systolic}] / 3$ were recorded in all the animals. All the parameters were recorded at 0(pre-induction), 5, 15, 30 and 60 minutes post induction. The data obtained were analyzed by using one way anova as described by Snedecor and Cochran (1994). The operations were

performed soon after induction in a routine manner.

RESULTS AND DISCUSSION

The mean induction dose of ketofol was 1 ml/kg bw (Propofol 2.5mg + Ketamine 2.5 mg). The mean induction time was 38.17 ± 2.12 seconds, duration of anaesthesia was 18.23 ± 3.31 minutes and recovery time was 32.66 ± 4.72 minutes. Induction was rapid and smooth in all the animals. A brief period of apnoea of about 20-25 seconds was observed during induction which subsided without any support. Lerche *et al.*, (2000) also reported similar apnoea in dog. Relaxation of jaw and protrusion of tongue were noticed in all the animals. The eye lid remained close and there was partial prolapse of 3rd eye lid with dilatation of pupil. Rotation of eye ball was not observed in any of the animals. There was no incidence of salivation, vomiting or any other adverse affect throughout the procedure. Analgesia was adequate and all the animals tolerated it well. This supports the findings of Willman and Andolfatto, (2007). Skeletal muscle relaxation was adequate as indicated by complete relaxation of jaws, limbs, tail and anal sphincter. Recovery was smooth and excitement free in all the cases. There was a transient non significant rise in the heart rate at 5 minutes (121.67 ± 12.35) which gradually returned towards the pre-induction value at 60 minutes (110.33 ± 3.12). However, there was a non significant decrease in MAP at 5 minutes (113.33 ± 3.33) with a gradual return towards the pre induction level at 60 minutes (121.17 ± 6.25). The rectal temperature did not change significantly during the observation period although the respiratory rate decreased significantly ($P < 0.05$) at 5 minutes (21.17 ± 1.54) from pre induction value of 32.83 ± 0.95 . A decrease in respiratory rate was also recorded by Andolfatto *et al.*, (2012). However, variations in these parameters were all within the normal physiological limit.

Cardiopulmonary function remained within the normal physiological limits after induction with ketofol. Ketofol provided optimum sedation with sufficient muscle relaxation and analgesia and can be used as a safe and effective anaesthetic for painful diagnostic and therapeutic procedure in canine patients.

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