



Oral Presentation

Ketamine or propofol anesthesia in dogs: how do they affect cytokines, antioxidants and neutrophil functions?

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Abstract

The objective of the study is to investigate the effects of ketamine and propofol on cytokines, anti-oxidant defense system, and neutrophil functions in dogs. A total of 24 dogs were used. Dogs were divided into two groups as ketamine and propofol. The ketamine group received ketamine (5 mg/kg) intravenously while the propofol group received propofol (4 mg/kg) intravenously. Blood samples were collected before sedation and 30 minutes after induction of anesthesia. Serum antioxidant and cytokine levels were analyzed and neutrophil functions were determined. Respiration rate, serum malondialdehyde, IL-4, IL-6 levels, and phagocytic and chemotactic activity of neutrophils were decreased ($P=0.001$, $P=0.010$, $P=0.014$, $P=0.039$, $P=0.008$, and $P=0.037$, respectively), oxygen saturation were increased ($P=0.025$) in the ketamine group. Serum IL-6 and IFN- γ level were decreased ($P=0.015$ and $P=0.032$ respectively), chemotactic activity of neutrophils were increased ($P=0.049$) in propofol group. The administration of ketamine was found to have a positive effect both on the antioxidant system and the neutrophil. On the other hand, positive and negative effects of propofol on different parts of the immune system were observed. Therefore, the results should be taken into account when designing an anesthesia protocol for dogs to predict possible defense system reactions during the postoperative period.

Keywords: dog, anesthesia, cytokine, antioxidant, neutrophil activation

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