VETEXPO 2022
International
Veterinary Sciences Congress
12-14 May 2022
Pullman Hotels & Convention Center | İstanbul

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 chemotaxic activity of neutro- phils 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 reac- tions during the postoperative period.

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

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