

significant changes in heart rate, but we found statistically significant differences in the behavioral responses to blood-collection procedure and between two phases.

Key words: Behavior; dog; heart rate; neurotransmitter; transfusion.

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ELECTROENCEPHALOGRAPHIC FINDINGS IN AGGRESSIVE DOGS

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The aim of the study was to assess electroencephalographic activity (EEG) and spectral EEG analysis (q-EEG) in dogs aggressive toward the owners and to compare them with a control group. Aggressive dogs (A): 10 males with a history of multiple bites toward the owners. Control group (C): 9 healthy dogs. Physical, behavioral and neurological examinations were performed in all control dogs and in 5 of 10 aggressive dogs. A complete blood cell count, serum biochemistry panel, and cerebrospinal fluid (CSF) analysis were performed in all dogs. Brain computed tomography (CT), and magnetic resonance imaging (MRI) were performed in 6 aggressive dogs and all control dogs. To evaluate each aggressive dog's behavior and the circumstances of the aggressive incidents a questionnaire was completed by the owner. All dogs underwent EEG measurement and q-EEG recording on the background activity under medetomidine-propofol sedation. Spectral bands measured included delta, theta, alpha, and beta waves expressed as relative power. All the aggressive dogs were euthanized at their owners' request. The Kolmogorov-Smirnov, ordinary ANOVA, and Tukey-Kramer tests were used for statistical analysis of the data with $P < 0.05$. All dogs had normal physical, neurological, CSF, CT, and MRI findings. From the questionnaires and behavioral examinations dogs in Group A were comprised of 6 dogs diagnosed with impulsive aggressive behavior (I) and 4 with dominance aggression (D). EEG for all dogs had high voltage-low frequency background activity. Occipital spikes were recorded for one I and two D dogs. In all I dogs there was a preponderance of delta and theta waves in the q-EEG recordings. There were significant decreases in theta, alpha, and beta waves in D vs. C dogs along with significant increases of theta, alpha, beta waves and decrease of delta waves between I vs. C and I vs. D dogs. Significant differences between the groups were found for the frontal, central, parietal scalp regions. This preliminary data suggests differences in spectral band

and topographic q-EEG patterns in aggressive dogs, as reported in humans with antisocial personality disorders and impulsiveness.

Key words: EEG; dog; aggression; impulsivity; measurement

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EVALUATION OF THE EFFECT OF TEMPORARY EXPOSURE TO SYNTHETIC DOG APPEASING PHEROMONE (DAP) ON LEVELS OF AROUSAL IN PUPPY CLASSES

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This study evaluated changes in behavioral and acoustic signs of arousal in 61 puppies under 20 weeks old after exposure to DAP. The puppies were treated with DAP at the beginning of six week Puppy School courses in double-blind, placebo controlled trials at three venues. Levels of arousal were determined from acoustic and behavioral data sampled from each lesson. Behavior was assessed by comparing video analysis of a sub-group of the population during free interaction in weeks 1 and 5 ($n = 9$ DAP, $n = 20$ placebo). Barking frequency in the DAP group was significantly lower than the placebo group ($F = 9.26$, $P = 0.004$), with the greatest difference in lesson 1. Classes with more than 5 puppies showed a significant increase in the number of vocalizations ($F = 3.24$, $P = 0.014$) and a trend towards increased noise levels ($F = 2.33$, $P = 0.057$). Lesson number showed a significant effect on noise levels. Behavioral data indicated that puppies exhibited more play behavior in lesson 5; exploratory sniffing ($T = 2.182$, $P = 0.0352$) and pawing ($T = 2.482$, $P = 0.0175$) were significantly higher in the placebo group, whereas the DAP group showed more rapid withdrawal ($T = -3.001$, $P = 0.0047$) and a trend towards rolling over ($T = -1.996$, $P = 0.0530$). The data suggest that immediate exposure to DAP has a potentially beneficial effect on arousal and behavior in puppy classes. Puppies in classes exposed to DAP exhibited more appeasing behavior than those exposed to placebo.

Key words: arousal; dog; pheromone; puppy; vocalization

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EVALUATION OF YOUNG AND ADULT DOGS' REACTIVITY

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