

Validation of a modified algometer to measure mechanical nociceptive thresholds in awake dogs

ABSTRACT

This study was conducted to validate the use of a modified algometer device to measure mechanical nociceptive thresholds in six dogs. Dogs were administered morphine intravenously (IV) at 1 mg/kg or saline at equivolume in a crossover design with one-week washout period. Mechanical nociceptive thresholds were determined before, after the administration of treatments at 5 minutes, and hourly for 8 hours. Thresholds were recorded at the carpal pad, metacarpal foot pad, tibia, femur, and abdomen. Heart rates, body temperature, and respiration were recorded at similar time points. Thresholds increased significantly () from baseline values for up to 3 hours at tibia and abdomen, 4 hours at metacarpal pad, and 5 hours at the carpal pad and femur. Hypothermia, bradycardia, and change in respiration were observed in all dogs after morphine injection. Saline did not alter any threshold levels during the eight-hour study period, indicating no evidence of tolerance, learned avoidance, or local hyperaesthesia. The device and methods of testing were well tolerated by all the dogs. Results suggest that the modified algometer and method of application are useful to measure nociceptive mechanical thresholds in awake dogs.

Keyword: Modified algometer; Mechanical nociceptive thresholds; Dogs