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INHALED CARBON MONOXIDE CONCENTRATION DURING HALOTHANE OR ISOFLURANE ANESTHESIA IN HORSES

Submitted by: (Name of Institution, 80 characters allowed)

University of Missouri, College of Veterinary Medicine

Names of Authors:

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Discipline:

Small Animal Equine Ruminant Exotic Laboratory

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INHALED CARBON MONOXIDE CONCENTRATION DURING HALOTHANE OR ISOFLURANE ANESTHESIA IN HORSES. JR Dodam\*, KR Branson, ME Gross, D Sanders, GF Petroski, University of Missouri, Columbia, MO, U.S.A.

Interaction between volatile anesthetics and CO<sub>2</sub> absorbents may result in production of carbon monoxide (CO). The purpose of this study was to assess CO exposure during equine anesthesia with either halothane (H; n=26) or isoflurane (I; n=24). Clinical cases were randomly assigned to receive either H or I. Two anesthetic machines were used and assigned to a single agent for 2-4 weeks. Machines were disassembled, and soda lime replaced whenever agents were switched. Soda lime was otherwise replaced as needed. Gas samples were continuously withdrawn from the inspiratory limb of the circuit and directed to an electrochemical detector for CO measurement. Values were recorded at 15 minute intervals for 90 minutes. Data were analyzed using five-factors ANOVA with repeated measures. Inspired CO concentration H and I, respectively, increased from 1 ± 1 and 6 ± 2 ppm at baseline to 54 ± 10 and 21 ± 6 ppm at 90 minutes (mean ± SEM). H was associated with significantly greater CO concentrations than I at 30-90 minutes, although CO at baseline was significantly greater in the I group than the H group. O<sub>2</sub> flow rates were 9.9 ± 0.1 liters/minute at baseline for H and I, and 5.0 ± 0.1 and 5.0 ± 0.2 liters/minute at 90 minutes for H and I, respectively. There were no significant differences in oxygen flow at any time point. Neither mechanical ventilation nor new vs used soda lime affected concentration of CO.

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