

Evaluation of tranquilization or anesthesia to enhance the quality of carbon dioxide euthanasia of piglets

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Carbon dioxide (CO₂) is commonly used to euthanize piglets. There are concerns that CO₂ used alone is stressful and attempts have been made to reduce the stress of this technique. Intramuscular azaperone 2 mg kg⁻¹ (n = 30) or alfaxalone 7 mg kg⁻¹ (n = 27) were compared to CO₂ alone (n = 29) in sick piglets (1-6 days old) euthanized with a commercial CO₂ chamber (Euthanex AgPro^R). Euthanasia was video recorded. Body movement (none---frequent) and subjective quality of euthanasia (poor---excellent) were scored via visual analogue scoring (0-10 cm line) by an evaluator unaware of treatment. Time to cessation of movement was also determined. Immediately post euthanasia blood was obtained in a subset of animals (10 per treatment) via cardiac puncture and analyzed for lactate and cortisol concentration. After testing for normality parametric data was analyzed with analysis of variance and a post hoc Tukey test. Non-parametric data was analyzed with a Kruskal-Wallis test and a post hoc Dunn test. Significance p < 0.05.

For body movement, alfaxalone (1; 0-4 cm) scored significantly lower than control or azaperone; no differences between control (7; 0-9 cm) and azaperone (7; 1-8 cm) were found. For subjective quality of euthanasia alfaxalone (7.0 +/- 2.0 cm) scored significantly greater than azaperone or control; no difference between control (4.5 +/- 1.2 cm) and azaperone (4.9 +/- 2.2 cm) were found. Time to cessation of movement was significantly faster in alfaxalone (0.8 +/- 0.9 min) than in control (3.4 +/- 1.8 min) or azaperone (3.6 +/- 1.5 min). Control was not significantly different than azaperone. Lactate and cortisol concentrations were not significantly different between treatments.

Anesthesia with alfaxalone significantly decreased movement severity, time to cessation of movement and improved the subjective quality of euthanasia. Tranquilization with azaperone did not improve quality of CO₂ euthanasia.

References

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