

Comparison of Three Drug Combinations for Raccoon Immobilization

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ABSTRACT: Raccoons (*Procyon lotor*) are regularly handled for damage management and research objectives. Safe handling of these animals in the field requires drug combinations that provide effective and predictable results with high safety margins for both the animal and personnel handling the animal, but also have a low probability of abuse. United States Drug Enforcement Administration scheduling relates to the probability of a drug being abused; class I drugs are associated with the greatest potential for abuse. We compared three drug combinations: butorphanol-azaperone-medetomidine (BAM; class IV), nalbuphine-azaperone-medetomidine (NAM; unscheduled), and ketamine-xylazine (KX; class III). Through a dose titration process, we identified optimal drug dosages of 0.016 ml/kg for BAM, 0.018 ml/kg for NAM, and 0.096 ml/kg for KX. The induction time was similar for all drugs. Only with KX were raccoons able to recover unaided by reversal drugs. After giving reversals, recovery times for BAM and NAM were relatively quick (average < 7 minutes). Based on blood oxygen saturation levels and respiratory rate, oxygen was administered to 72%, 71%, and 21% of the raccoons immobilized with BAM, NAM, and KX, respectively. Breathing was cyclic in raccoons immobilized with BAM and NAM, and some raccoons were given reversal agents prior to completing a workup due to low respiratory rate or low oxygen saturation levels. Raccoons immobilized with KX were observed with a more regular breathing pattern. Based on our results, it is highly recommended that both oxygen and associated reversals be available when using BAM or NAM to immobilize raccoons.