Does the Addition of Parenteral Opiate Pre-Medication Increase Risk of Complications when combined with Methohexital for Procedural Moderate Sedation in the ED?

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Objectives: The goal of this study was to determine if the addition of parenteral opiate medications in combination with methohexital for moderate/procedural sedation in the ED increases the risk of respiratory or cardiovascular complications.

Methods: We conducted a review of an existing single ED database of all patients who underwent moderate and procedural sedation in which methohexital was administered over a 2-year period. This database included data on patient demographics, procedure, sedation medications, pre-, intra-, and post-procedure vitals signs and monitoring changes, procedural success, complications and management. Patients were stratified into 2 groups: those who were pre-medicated with parenteral opiates and those who were not. Significant respiratory and cardiovascular abnormalities and complications were defined aprior to data collection and analysis. Power analysis determined that 108 cases were needed to detect a 25% increase in complication rates. Statistical analysis was performed using Fisher's exact with $p<0.05$ considered significant (STATA 6.0).

Results: During the study period, there were 114 patients who received methohexital, of whom 65 received parenteral opiate pre-medication (primarily morphine and fentanyl) and 49 did not. Overall rate of respiratory or cardiovascular complications was 15.9% with no significant difference between those who received opiate premedication and those who did not (18.7% vs. 11.0% respectively, p=.20). All complications were transient and managed without any long-term sequelae. Overall procedural success was 81% with no difference between the 2 groups (p=.50).

Conclusions: In this study, the addition of parenteral opiate pre-medication with methohexital for moderate procedural sedation in the ED did not result in any increase in respiratory or cardiovascular complications nor decrease in procedural success. These findings need further validation with a larger, randomized study.

Pressure-Immobilization Delays Mortality and Increases Intra-compartmental Pressure after Artificial Intramuscular Rattlesnake Envenomation in a Porcine Model

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Objectives: To determine if pressure-immobilization (PI) delays mortality and/or elevates intracompartmental pressure after artificial, intramuscular *Crotalus atrox* envenomation in a porcine model.

Methods: We prospectively studied 20 pigs using a randomized, controlled design. After the pigs were anesthetized, *Crotalus atrox* venom (20 mg/kg) was injected with a 22-gauge needle 10 mm deep into the tibialis anterior muscle of the hind leg. Pigs were randomized to receive either PI (applied one minute following envenomation and left in place for the duration of the experiment) or no PI. We measured time to mortality; intracompartmental pressure prior to venom injection and at 2 hours following injection; and leg circumference at a standardized ocation prior to injection and immediately after mortality. We compared the increase in intracompartmental pressures and leg circumference using the unpaired Student t test. Duration of survival was compared using Kaplan-Meier survival analysis techniques.

Results: The dose of venom resulted in 100% mortality. The mean survival times (minutes $\pm$ SD) were 189 $\pm$ 33 with PI and 155 $\pm$ 23 without. The effect size (the difference between the 2 groups) was 34 minutes (95% CI = 6 to 62, P = 0.021). The mean intracompartmental pressures (mmHg $\pm$ SD) were 67 $\pm$ 13 with PI and 24 $\pm$ 5 without (effect size: 43 mmHg, 95% CI = 32 to 53, P < 0.0005). The mean circumferences (cm $\pm$ SD) were 14.3 $\pm$ 0.8 with PI and 19.1 $\pm$ 1.0 without (effect size: –4.8 cm, 95% CI = -5.7 to –3.9, P < 0.0005).

Conclusions: PI resulted in significantly longer survival, less swelling, and higher intracompartmental pressures.