

**TITLE:** The Effects of a Normal Saline Bolus on Patients Undergoing Ketamine Sedation for Fracture Reduction in the Pediatric Emergency Department

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**Background:** Ketamine is widely used for sedation in pediatric emergency departments (ED). It provides the needed sedation and analgesia for the safe reduction and casting of fractures and is well tolerated in children. In this study's ED, discharge criteria are met by patients reaching a Steward scaled score of 6 indicating a full recovery from sedation. The recovery time varies with each patient and thus the length of stay is a valuable measure in patient satisfaction and financial outcomes.

**Objective:** The primary purpose of this study was to examine the recovery time between subjects who received ketamine sedation and a fluid bolus versus those who received ketamine alone. The objective was to reduce the recovery time and thus the lengths of stay in patients requiring ketamine sedation for fracture reduction. Age, weight, gender, ketamine dosage and normal saline bolus amount was also investigated.

**Methods:** This was a prospective, dual-arm observational study completed over a 12-month period. Administration of a fluid bolus prior to sedation is not the standard of care in the study's pediatric ED. Therefore, patient management varies with each provider allowing for a complete randomization to occur without selection. Each sedating physician assessed their patient and determined if they would benefit from a fluid bolus. The time the patient reached a Steward scaled score of 6 was recorded.

**Results:** Two hundred twenty six patients undergoing ketamine sedation were analyzed with 111 patients receiving a fluid bolus and 115 patients not receiving a bolus. There was no significant difference in primary outcome time to recovery between the two groups ( $p\text{-value}=0.99$ ).

**Conclusion:** Although patients requiring sedation with ketamine are assumed to be at a fluid deficit state from their NPO status, fluid hydration did not show a reduced recovery time. Further investigation is needed to explore reducing recovery time and other hydration benefits.