

# The Monitored Anesthesia Care-Soft Tissue Infiltration with Local Anesthesia Technique Decreases Incidence of Short-Term Postoperative Altered Mental Status in Older Hip Fracture Patients

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## INTRODUCTION:

The purpose was to compare the incidence of short-term postoperative altered mental status (AMS) of geriatric patients undergoing operative repair of hip fractures under monitored anesthesia care and soft-tissue infiltration with local anesthesia (MAC-STILA) in comparison to general anesthesia (GA).

**METHODS:** A consecutive series of hip fracture (OTA 31A and 31B) patients who underwent operative repair at one of four hospitals within a single academic medical center were identified from a prospective database. A cohort of patients who received GA underwent propensity matching to a cohort of patients who received MAC-STILA in a 2:1 ratio based on age, sex, body-mass index (BMI), Anesthesia Society Association (ASA) score, baseline ambulatory status, preoperative assistive device, fracture pattern, implant type, and hospital. The MAC-STILA and general cohort of patients were compared using standard methods over the following parameters: Charlson co-morbidity index (CCI), intraoperative vital signs (systolic and diastolic blood pressure (BP), respiratory rate (RR), and heart rate (HR), and postoperative altered mental status (AMS) up to 3 days postoperatively. A logistic regression model was used to evaluate the difference in incidence of AMS between cohorts when controlling for patient age, baseline ambulatory status, ASA, CCI, and preoperative mental status. Permutation testing was used to confirm the results.

**RESULTS:** Seventy-nine MAC-STILA patients were compared to 158 GA patients. GA patients had significantly higher CCI (2.1±1.9 vs. 1.6±1.6, p<0.001). MAC-STILA patients maintained higher minimum intraoperative systolic BP (96.4±18.4 vs. 83.4±16.2, p<0.001) and diastolic BP (52.9±9.7 vs. 45.2±10.6, p<0.001) and there was no difference in minimum HR (60.8±8.9 vs. 63.4±13.1, p = 0.079) or maximum (107.8±21.2 vs. 168.8±83.6, p = 361) HR. There was no difference in postoperative VAS pain scores, postoperative ambulation, or postoperative complications including hypotension, shock, pneumonia, deep vein thrombosis, urinary tract infection, anemia, respiratory failure, cardiac arrest, and inpatient mortality. Multivariate logistic regression demonstrated that MAC-STILA patients were associated with 85% lower odds of AMS on postoperative days 0 to 3 compared to GA patients (p=0.003).

**DISCUSSION AND CONCLUSION:** MAC-STILA is associated with lower odds of short-term postoperative AMS compared to GA in hip fracture patients undergoing operative repair.

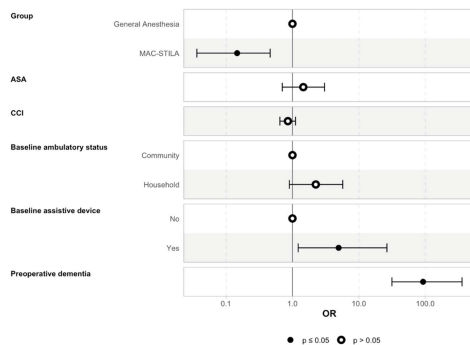


Figure 1: Model coefficients for odds of developing postoperative AMS.

Characteristic	OR <sup>†</sup>	95% CI <sup>†</sup>	p-value
Group			
General Anesthesia	—	—	—
MAC-STILA	0.15	0.04, 0.46	0.003
ASA	1.46	0.70, 3.04	0.306
CCI	0.85	0.65, 1.11	0.250
Baseline ambulatory status			
Community	—	—	—
Household	2.24	0.90, 5.71	0.084
Baseline assistive device			
No	—	—	—
Yes	4.96	1.22, 26.4	0.039
Preoperative dementia			
No	—	—	—
Yes	92.5	31.4, 357	<0.001

<sup>†</sup>OR = Odds Ratio, CI = Confidence Interval

Table. Multivariable logistic regression demonstrating that patients in the MAC-STILA group were associated with significantly lower odds of postoperative (POD0-3) AMS compared to patients in the general anesthesia group.