Pre-Injury Anticoagulant, Antiplatelet Agents, and Aspirin (AC/AP/ASA) With or Without Tranexamic Acid (TXA) Use and the Effects on Transfusion Rates in Geriatric Intertrochanteric Femur Fractures

Arielle R. Levine, MS; *Trevan K. Klug, BS; Matthew Riedel, MD; Daniel Wiznia, MD; Michael P. Leslie, DO*

Purpose: AC/AP/ASA use is highly prevalent among geriatric populations. Questions remain regarding the impact of these therapies in the setting of hip fractures and how they impact time to operating room (OR) and transfusions, even with TXA administration.

Methods: Retrospective review of 2128 consecutive intertrochanteric hip fractures admitted to a single center from 2014 to 2023 was conducted. Variables collected included basic patient and operative characteristics, use of AC/AP/ASA at the time of admission, TXA administration, operative time, estimated blood loss (EBL), and transfusions.

Results: The strongest predictive variable for EBL was operative time. ASA therapy was associated with increased EBL, and no AC/AP therapy was associated with decreased EBL. Furthermore, there was a significant difference in number of transfusion events between those on AC/AP/ASA therapies as compared to patients not on AC/AP/ASA, including when TXA was controlled for. However, TXA administration did significantly correlate with decreased transfusions across all cohorts. There was no significant impact of AC/AP/ASA therapies on time to OR.

Conclusion: Operative time is the most strongly predictive factor for EBL. ASA status independently contributes to EBL. Use of TXA decreases the need for transfusion, even in the setting of AC/AP/ASA use at time of admission, with no difference in time to OR.

	Addition of ASA Treatment	No AC or AP	Operative Time
Weighted Model Contribution: T-Value(p-value)	3.850 (0.000121)	-2.6555 (0.007981)	30.817 (<2e-16)
	Yes AC/AP/ASA (n = 1431)	No AC/AP/ASA (n = 697)	p-value
Days to OR (IQR 1 - 3)	1.7 days (1 – 2 days)	1.5 days (1 – 1 day)	0.35781
Transfusions: Overall w/ Exposure to AC/AP/ASA	RR (95% CI): 1.6 (1.19 – 2.15)	Negative Predictive Value: 92.4% Positive Predictive Value: 12.2%	0.0018
Full Cohort	**TXA: Yes (n = 1017)**	**TXA: No (n = 1111)**	**p-value**
Transfusions: Overall w/ Exposure to TXA	RR (95% CI): 0.457 (0.348 – 0.601)	Negative Predictive Value: 85.6% Positive Predictive Value: 6.6%	<0.0001
Transfusions: AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 0.515 (0.337 – 0.769)	Negative Predictive Value: 78.1% Positive Predictive Value: 11.2%	0.0013
Transfusions: No AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 0.351 (0.197 – 0.626)	Negative Predictive Value: 88.4% Positive Predictive Value: 4.1%	0.0003
IM Nails (1727)	**TXA: Yes (n = 915)**	**TXA: No (n = 812)**	**p-value**
Transfusions: Overall w/ Exposure to TXA	RR (95% CI): 0.448 (0.328 – 0.611)	Negative Predictive Value: 87.1% Positive Predictive Value: 5.8%	<0.0001
Transfusions: AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 0.417 (0.292 – 0.595)	Negative Predictive Value: 83.9% Positive Predictive Value: 6.7%	<0.0001
Transfusions: No AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 0.388 (0.207 – 0.727)	Negative Predictive Value: 89.2% Positive Predictive Value: 4.2%	0.0037
DHS (373)	**TXA: Yes (n = 85)**	**TXA: No (n = 288)**	**p-value**
Transfusions: Overall w/ Exposure to TXA	RR (95% CI): 0.484 (0.196 – 1.2)	Negative Predictive Value: 87.8% Positive Predictive Value: 5.8%	0.15
Transfusions: AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 0.766 (0.308 – 1.91)	Negative Predictive Value: 87.7% Positive Predictive Value: 9.4%	0.73
Transfusions: No AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 0 (0 - NaN)	Negative Predictive Value: 88.2% Positive Predictive Value: 0.0%	0.06
Hemi (16)	**TXA: Yes (n = 10)**	**TXA: No (n = 6)**	**p-value**
Transfusions: Overall w/ Exposure to TXA	RR (95% CI): 0.6 (0.233 – 1.55)	Negative Predictive Value: 33.3% Positive Predictive Value: 40.0%	0.61
Transfusions: AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 1 (0.5 – 2)	Negative Predictive Value: 25.0% Positive Predictive Value: 75.0%	1
Transfusions: No AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 0 (0 – NaN)	Negative Predictive Value: 50.0% Positive Predictive Value: 0.0%	1
THA (12)	**TXA: Yes (n = 7)**	**TXA: No (n = 5)**	**p-value**
Transfusions: Overall w/ Exposure to TXA	RR (95% CI): 0.714 (0.234 – 02.18)	Negative Predictive Value: 40.0% Positive Predictive Value: 42.9%	1
Transfusions: AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 1.2 (0.357 – 4.04)	Negative Predictive Value: 50.0% Positive Predictive Value: 60.0%	1
Transfusions: No AC/AP/ASA w/ Exposure to TXA	RR (95% CI): 0.5 (0.125 – 2)	Negative Predictive Value: 0.0% Positive Predictive Value: 50.0%	1