

IMPROVED RECOVERY WITH TRANEXAMIC ACID: UP AND WALKING AND RARELY TALKING ABOUT BLOOD TRANSFUSION

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Background

- Surgical patients having total knees and hips have required administration of blood products intra-op and post-op due to blood loss
- There is a limited supply of blood products
- Patients have increased recovery times and longer hospital stays when they have received blood products

Evidence/Literature Review

Several studies developed patient care protocols for using injectable TXA, an antifibrinolytic, for patients having total hip or total knee replacements

Research shows positive results to TXA therapy, decreasing the need for blood product transfusions.

Review of the evidence revealed that the use of TXA did not increase adverse events such as pulmonary embolisms and deep vein thrombosis in these same patients

Evidence showed fewer blood transfusions enables patients to fully participate in physical therapy, be discharged earlier and are more likely to be discharged home, rather than to a rehab facility

Objectives

Gather evidence regarding blood transfusions in patients having total joint replacements (hip or knee), related to tranexamic acid infusions, post-operative complications, length of stay, participation in therapy, and patients disposition on discharge from hospital.

Implement protocol, including ongoing assessment, for infusion of TXA for the total hip and total knee patient.

References

- Levine, B. R., Haugthorn, B. D., Belkin, M. N., & Goldstein, Z.H. (2014). Weighted versus uniform dose of tranexamic acid in patients undergoing primary, elective knee arthroplasty: a prospective randomized controlled trial. *The Journal of Arthroplasty* 29(suppl. 2), 186-188. doi.org/10.1016/j.arth.2014.01.038
- Simmons, J., Sikorski, R. A., & Pettet, J. F. (2015). Tranexamic acid: from trauma to routine perioperative use. *Co-Anesthesiology*, 28:191-200. doi:10.1097/ACO.00000000000000165
- Sahlyda, S., Sarda, P., Sukelk, M., & et al. (2011). Tranexamic acid in total knee replacement: a systematic review and meta-analysis. *The Journal of Bone & Joint Surgery*, 93-b, 1577-85. doi:10.1302/0301-620X.93B12.26989

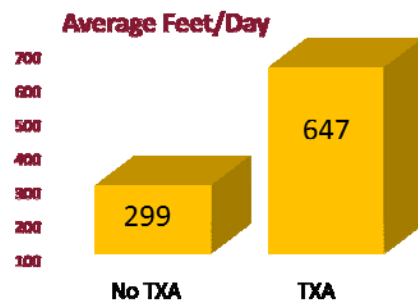
Minitab version 17 was used for the statistical analysis

Process of Implementation

After review of literature, team consensus and appropriate approval, a protocol for TXA was implemented. A training plan was executed involving anesthesia, surgeons and nurses from surgery, PACU and the orthopedic care area. The process was monitored and data trended. The process was successful and further data assessment is in process.

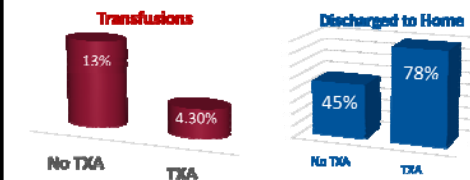
Statement of Successful Practice

Patients who have had the TXA infusions in conjunction with a hip or knee arthroplasty have less blood loss, fewer transfusions of blood, shorter length of stay in the hospital, consistent participation in therapy, and the majority of patients are discharged home.



Results

Demographics		
	Range	Mean
N = 254		
Age (years)	43-91	66.3
LOS (days)	1-13	2.58
BMI (Body Mass Index)	19.21-59.28	32.42
Hips = 69 Knees = 185		
No TXA = 69 TXA = 185		



Correlation Matrix					
	Joint	Transfusion	LOS	Age	BMI
Transfusions	0.024 0.706				
LOS	-0.138 0.028	0.269 0.000			
Age	-0.102 0.103	0.104 0.098	0.150 0.017		
BMI	-0.327 0.000	-0.161 0.010	0.105 0.097	-0.283 0.000	
TXA	-0.005 0.936	-0.156 0.013	-0.126 0.044	-0.006 0.924	0.071 0.258

Cell Contents: Pearson Correlation top number, P-Value bottom number.
Transfusions, Joint, and TXA are nominal data (yes or no)
Correlations table is included for information to suggest further inquiry.

Success After TXA protocol implemented for Total Hip or Total Knee Patients

- Less blood loss, cell saver not needed during the surgeries (cutting cost)
- Fewer transfusions post-op
- Earlier participation in therapy
- Shorter LOS of almost a full day
- Good participation in therapy
- Majority of patients go to house
- No increase in complications such as Pulmonary Embolism and Deep Vein Thrombosis

Conclusion/Recommendations

- This sample is small and minimal control of variables, further projects could expand this project
- Continue with TXA protocol and data collection, revise as appropriate
- Continue to gather evidence on Joint Replacement patients to improve their recovery and patient experience.
 - ❖ Investigate relationship with blocks and/or Exparel
 - ❖ Continue with earlier mobility and therapy involvement
 - ❖ Further improve number of patients discharge to home with home health
- Investigate with other types of patients
- Correlations support the use of the TXA and the influence it may have on the overall improvement of patient recovery
- The correlation matrix was constructed with the intent of generating further inquiries
- Special Thanks to all of those at THHH who helped in this study!

Implication for Advancing the Practice of PeriAnesthesia Nursing

The implementation of this TXA protocol improves the quality and safety of patient care and the patient's overall surgical recovery. Infusions of TXA are correlated with a decreased need for blood transfusions, intra-op and post-op. The patients were able to participate in therapy earlier, then go home sooner. There was not any increase of post-complications such as pulmonary embolisms or DVTs in the patients who received TXA.