EVALUATION OF TRANEXAMIC ACID AND THROMBOEMBOLIC EVENTS IN TRAUMA PATIENTS

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Background:

TXA in Trauma:

- 5 original articles
- 1 RCT : CRASH-2
- 3 Sub-Studies (1 in TBI)
- 2 Retrospective Studies: Matters I and II
- Overall more than 12 000 traumas received TXA

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However:

CRASH 2:

Outcome	TXA	Placebo	RR (95% CI)
Vascular Occlusive Events	1.7%	2%	0.84 (0.68-1.02)

- <2% countries with rapid access to blood products, damage control surgery angio-embolization an critical care
- 16% baseline death – almost double of high income countries
- Thromboembolic events not screened; not definitive
- Matters Study – PE/DVT rates were 9 and 12 times higher in TXA

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In our Hospital:

- TXA has been introduced in our trauma protocol in 2010 soon after CRASH-2
- However our compliance rates were initially not the highest (5.8%)
- This presented us with an opportunity to study the association between TXA and TEE

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Methods:

- Study:
  - Retrospective chart review on trauma patients over a period from January 2011 to June 2013
- Cohort :
  - All consecutive traumas that received one unit of PRBC within the initial 24 hours
- Main Study Outcome:
  - TEE to hospital discharge.

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Methods:

TEE:

- DVT – Doppler US
- MI – Troponins, ECG
- Stroke - CT Head
- PE – CT PE Protocol

DATA:

- Mean +/- SD or Medians +/- IQR
- Chi square test
- Fischer t-test Wilcoxon test
- Significance set at $p<0.05$

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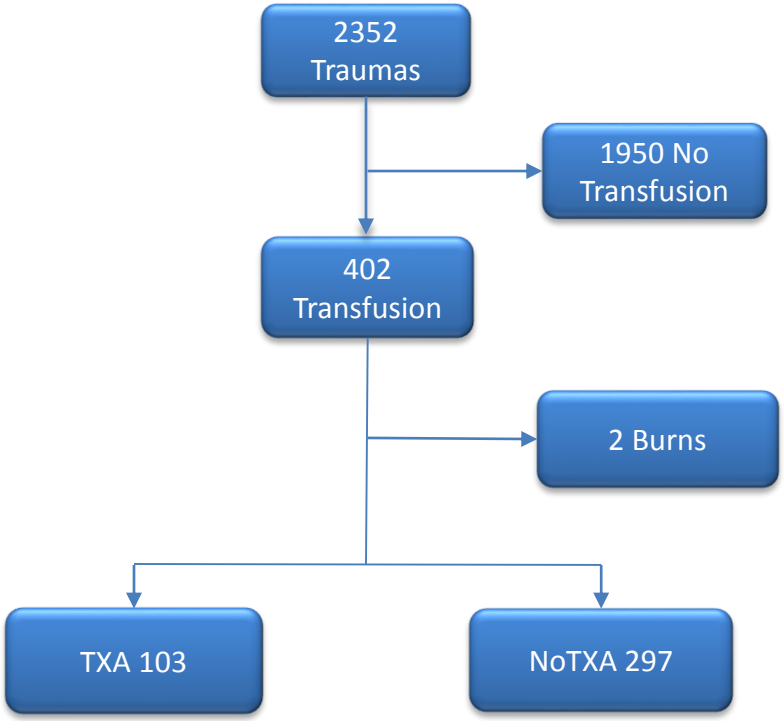
Results:



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Results: Demographics and Baseline Characteristics

Variable	TXA (n=103)	No-TXA (n=297)	p -value
Age : mean;(SD)	44.9 (21.1)	45.6 (22.1)	0.77
Sex (%)			
Men	73%	70%	
Women	27%	30%	0.58
Type of Injury			
Blunt	77%	79%	
Penetrating	23%	21%	0.61
ISS	35.6 (14.3)	33.2 (14.2)	0.13
AIS Head	3.6 (1.2)	3.7 (1.2)	0.66
AIS Neck	1.7 (0.94)	2.1 (1.3)	0.62
ICH	31%	37%	0.21
SBP	101.7 (40.2)	105.5 (36.5)	0.57
HR	113.1 (28.2)	120.4 (23.5)	0.11
pH	7.2 (0.12)	7.2 (0.15)	0.41
Hb	107.8 (24.4)	110.1 (26.4)	0.37
Plt	171.1 (69.4)	215.8 (84.2)	0.0002
INR (median; (IQR)	1.2 (1.1-1.4)	1.3 (1.1-1.7)	0.54

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Results: Transfusion:

Variable μ (IQR)	TXA	NoTXA (n=297)	P value
RBC (Mean (μ+/- IQR)	4 (2-7)	2 (1-6)	0.12
FFP	1 (0-4)	0 (0-4)	0.02
PTL	0 (0-4)	0 (-4)	0.19
Cryo	0 (0-0)	0 (0-0)	0.06

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Results:

Outcome:	TXA (n=103)	NoTXA (n=297)	RR (95%CI)	p (value)
TEE	13.5%	8%	1.5 (0.9-2.3)	0.14
DVT	6.7%	3%	2.2 (0.8-5.9)	0.14
MI	2.9%	0.7%	4.3 (0.7-25.5)	0.11
Stroke	4.8%	3.3%	1.4 (0.5-4.1)	0.55
PE	3.8%	1.6%	2.3 (0.6-8.4)	0.24
Mortality	32%	28%	1.2 (0.8-1.6)	0.41
24h Mortality	19%	17%	1.3 (0.7-1.8)	0.65

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Conclusions:

- Even though there is no statistical significance there appears to be a signal.
- The rates are higher than CRASH 2
- This study can not be definitive

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Limitations:

- We did not find statistical difference in the rate of TEE complications
- Small Cohort
- Possible confounders as TXA group received more plasma

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CURRENT & FUTURE STUDIES

PATCH TRAUMA

- 1184 pts with COAST ≥ 3 to receive TXA pre-hospital; 9% difference in favorable outcome (GOSE) at 6 months
- started Nov 2013

CRASH-3
Clinical Randomisation of an Antifibrinolytic in Significant Head Injury

- 10,000 pts with ICH & GCS ≤12; death at 28d
- 959 pts randomized; end Dec 2016

ROC

- TXA for TBI; US/ Canada military funded trial; design phase

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