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Incidence of Aspirin Effect in an Anticipated Aspirin Negative Elderly Population

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10/30/19

Introduction

- Use of antiplatelet/anticoagulant drugs is very common in elderly patients, particularly aspirin
- In head trauma aspirin use increases risk of traumatic brain injury (TBI)
- Accurate medication history is important for rapid implementation of anticoagulant/antiplatelet reversal protocols

Study Aim:

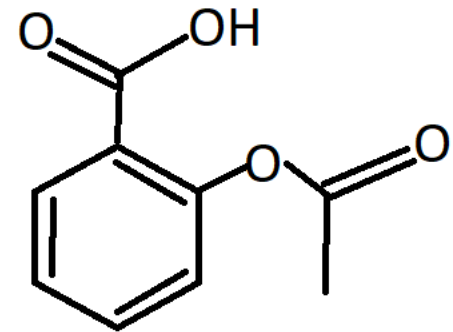
Determine what proportion of TBI patients without antiplatelet medications in their history show signs of antiplatelet use on laboratory testing

Anticoagulant/Antiplatelet Medications

- Common Anticoagulants: Heparin, Warfarin, Apixaban, etc.
 - Interfere with clotting factors
- Common Antiplatelets: **Aspirin**, Clopidogrel, Prasugrel, etc.
 - Interfere with platelet function

Aspirin

- Acetylsalicylic Acid (ASA)
- Prescription or over-the-counter
- Part of many over the counter compounds (Alka Seltzer, Goody's Powder, BC Powder, etc.)
- COX-2 inhibitor



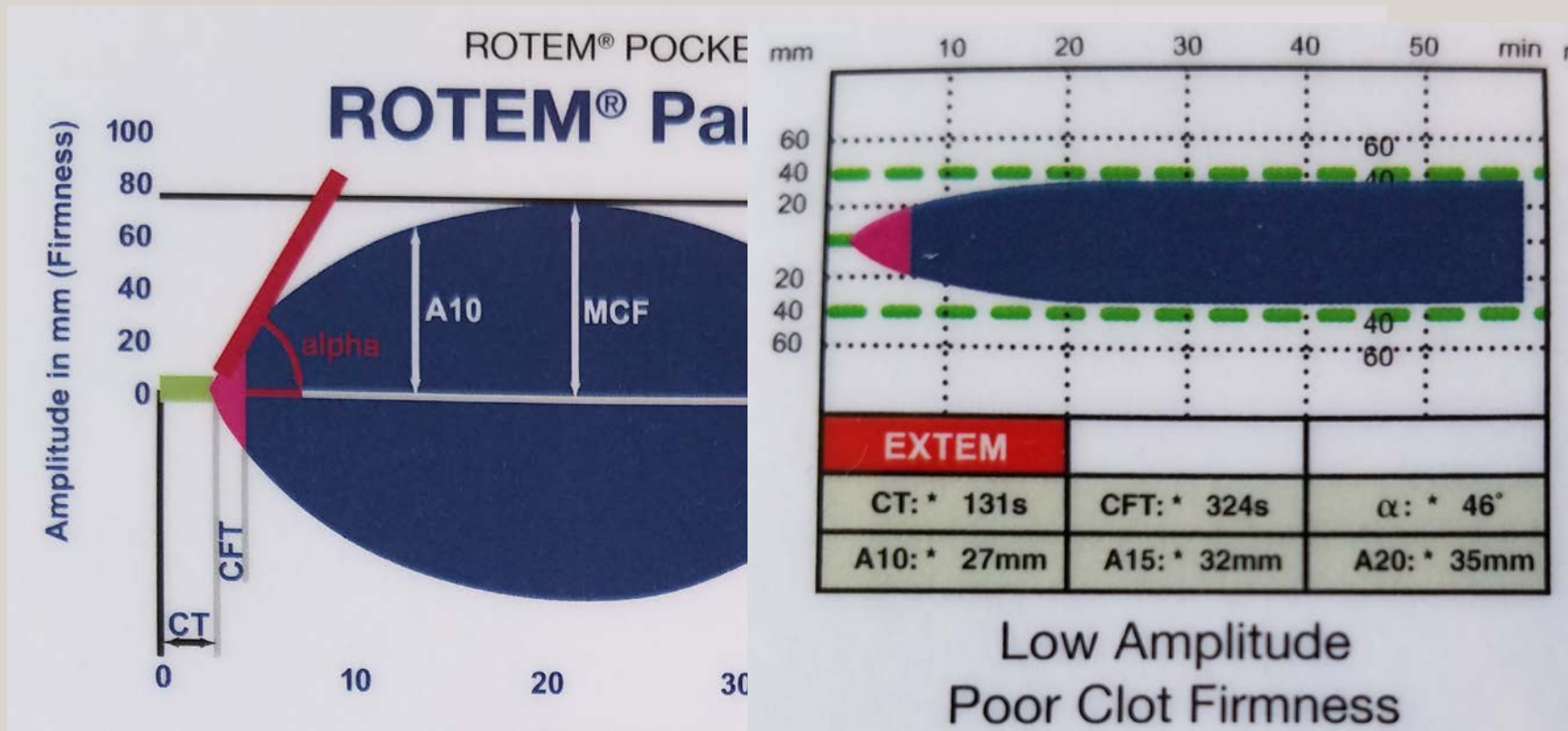
TBI in the elderly

- Falls, MVC's, Struck By Object leading causes of TBI
- Almost ½ of trauma patients at GSMC each year present for falls, majority 60+
- Highest rate of TBI deaths in patients 75+
- Anticoagulant/antiplatelet use increases risk of TBI

Rotational Thromboelastometry (ROTEM)

- Viscoelastic hemostasis test
- Provides information on clotting time, clot firmness, time to lysis, etc.
- Rotating sensor is placed in blood sample, measures elasticity and plots amplitude over time
- Types of ROTEM: EXTEM, INTEM, FIBTEM, APTTEM

Reading ROTEM results



Methods

- Deidentified, retrospective review
- Data obtained from Enterprise Data Warehouse
- Grand Strand Medical Center (GSMC) data only
- Patients categorized based on medication history, type of TBI, ROTEM results, VerifyNow Aspirin results, plateletpheresis status

Inclusion & Exclusion Criteria:

Inclusion:

- Trauma Patient at GSMC
- Between September 1, 2017 – May 30, 2019
- 65 years or older
- Dx with TBI

491 total patients

Exclusion:

- No Home Meds listed
- No GCS score
- No ROTEM results listed

168 Patients
Included in Study

Antiplatelet ROTEM Criteria

EITHER:

- MCF EXTEM < 50 mm **AND** MCF FIBTEM \geq 10 mm
- MCF EXTEM < 50 mm or A10 EXTEM < 40 mm **AND** no FIBTEM results
- CFT EXTEM > 160 s **AND** CFT APTEM < 160 s
- A10 INTEM < 35 mm

Results

Table 1. Demographic Characteristics of Study Participants (N=168)

	Mean (SD)	Min	Max
Age		65	>90
Total GCS	13.6(3.2)	3	15
	Frequency	Percentage	
Sex			
Male	84	50.0	
Female	84	50.0	
Mode of Injury (MOI)			
Fall	130	77.4	
Other MOI	38	22.6	
Patient Self Report of Aspirin History			
Yes Aspirin History	76	45.2	
No Aspirin History	92	54.8	
Patient Self Report of Other Anticoag			
Yes Anticoag History	76	45.2	
No Anticoag History	92	54.8	
ROTEM Test			
Indicates Antiplatelet Use	4	2.4	
Does not Indicate Antiplatelet Use	164	97.6	

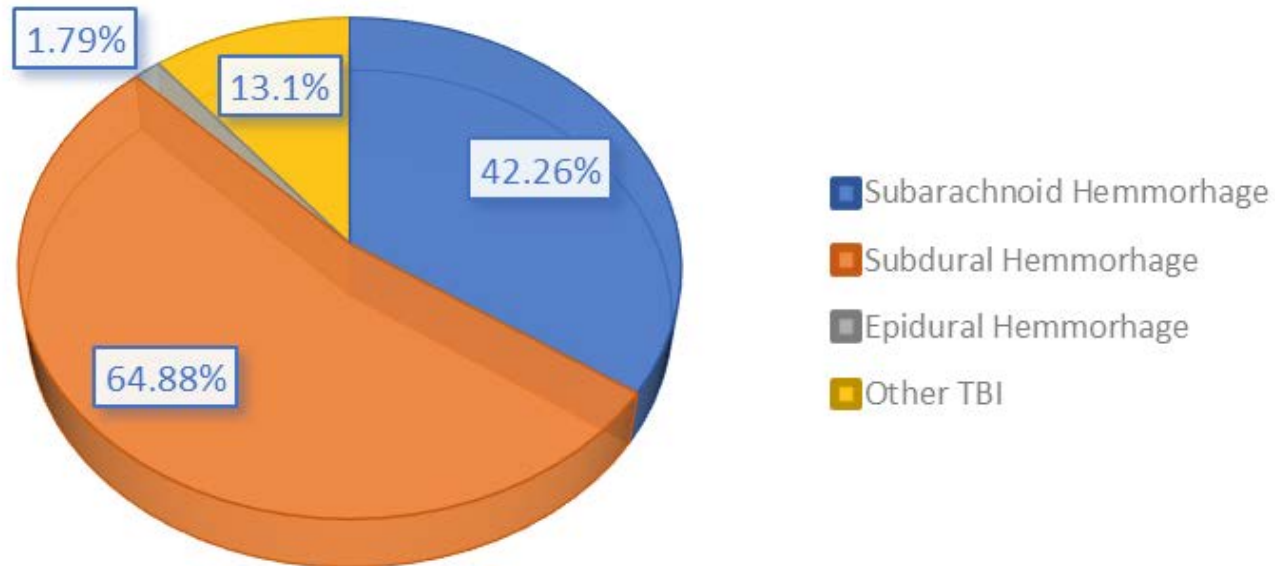
Results

Table 2. Demographic Characteristics of Study Participants with No History of ASA and No History of Other Anticoag (N=50)

	Mean (SD)	Min	Max
Age		65	>90
Total GCS	12.4(4.6)	3	15
	Frequency	Percentage	
Sex			
Male	21	42.0	
Female	29	58.0	
Mode of Injury (MOI)			
Fall	34	68.0	
Other MOI	16	32.0	
ROTEM Test			
Indicates Antiplatelet Use	2	4.0	
Does not Indicate Antiplatelet Use	48	96.0	

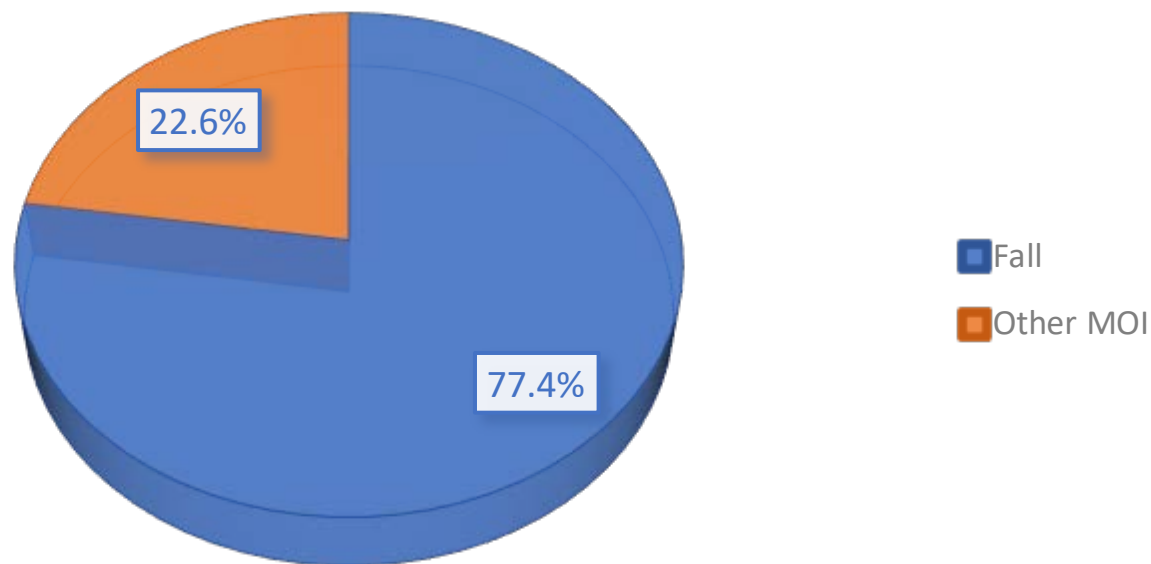
Results

TYPES OF TBI IN COHORT



Results

METHOD OF INJURY LEADING TO TBI



Results

Table 3. Results of Chi-squared and Fisher Exact Test Statistical Analysis

Positive ROTEM ASA	Positive ROTEM Other Anti Coag	p-value
1 (76)	1 (76)	
Positive ROTEM ASA vs Other		1
Positive ROTEM ASA vs None		0.5622
Gender of Population with Antiplatelet/Anticoagulant vs None		0.177
Method of Injury in Population with Antiplatelet/Anticoagulant vs None		0.0585
Positive VerifyNow ASA vs Other		0.2636
Positive VerifyNow ASA vs both ASA and Other		0.493
Positive VerifyNow ASA vs None		0.4812
Positive VerifyNow ASA vs No ASA		0.5913

Limitations

- Relatively small sample size
 - ROTEM not performed as often as anticipated
- Confounding variables not explored (comorbidities, PT/PTT, etc.)
- Ongoing project

Sources

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**Grand Strand
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