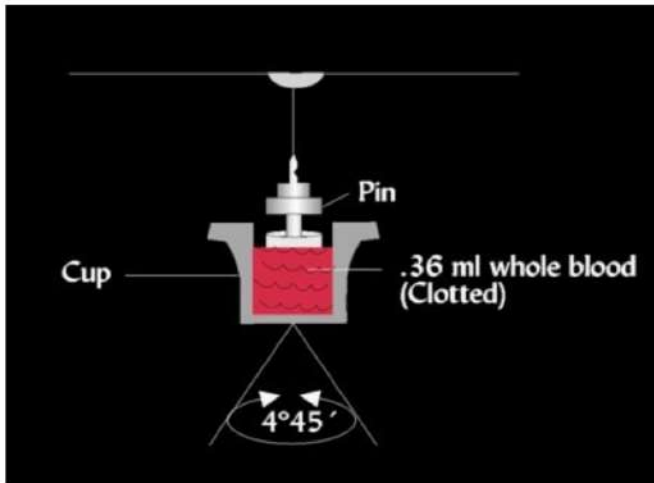
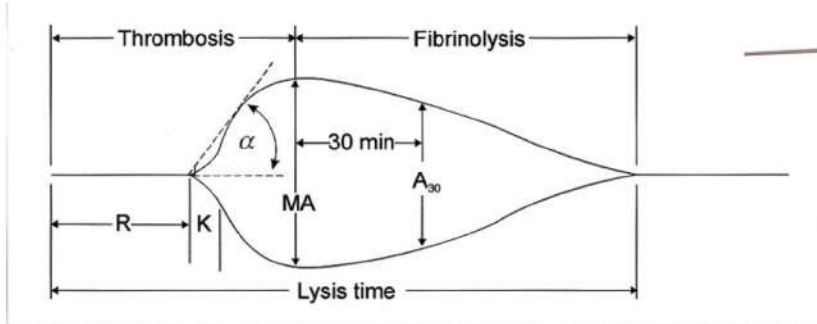


patient to help with traumatic bleeding and streamline the treatment process.

TEG Machine



“Normal” picture from viscoelastic clot formation-



NCME Up-2-Date

TEG

December 2017

What is it?

Viscoelastic measurement of clot formation has been around since the 1960's, but the US has only really been using it as a tool since the 1990's. It is a whole blood lab test that is used on trauma patients at risk for trauma induced coagulopathy. Recently this test has also been used on other patients at risk for developing a coagulopathy after CABG, sepsis, and even with the new generation anticoagulants. A thromboelastography (TEG) or rotational thromboelastometry (ROTEM) machine, using proprietary reagents, stirs whole blood and causes a clot to form. Based on how fast the clot forms, how strong the fibrin bond is within the clot, and overall clot strength, it gives us a 'picture' of the clot that can then be used to determine what needs to be given to a



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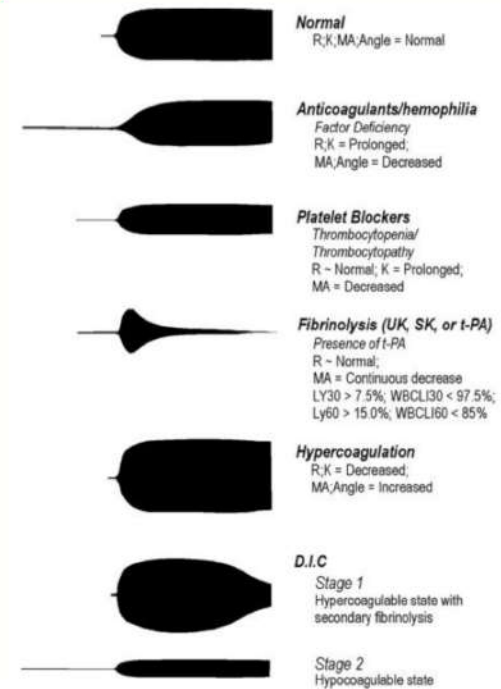
Why is it important?

According to Gonzalez, et al from a study done in 2016, a group of 111 patients were either treated with TEG guided therapy or conventional analysis found that "Utilization of a goal-directed, TEG-guided MTP to resuscitate severely injured patients improves survival compared with an MTP guided by CCA (conventional coagulation assay) and utilizes less plasma and platelet transfusions during the early phase of resuscitation." They found that Denver trauma patients had a higher survival rate, used fewer blood products, and generally did better than patients who were treated with standard coagulation studies.

How does it change my practice?

If we are able to individualize our treatment regime of our trauma patient, to provide a better outcome, less blood product transfusion, and shorter stays, why not? This allows us to tailor treatment of a trauma patient to what they need for their clotting status.

Patterns



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The future

Pediatrics were studied and found that they reached adult coagulation parameters around age 13, so we can generally apply this to the older pediatric patient. Based on that knowledge, there could eventually be the ability to identify what younger pediatric patients need as well. Novel anticoagulants have made it difficult to resuscitate bleeding trauma patients. In at least one study, TEG was used successfully to resuscitate those patients as well. If you can imagine any disease process where coagulation has become an issue, they may eventually use TEG in the acute phase to be able to more appropriately treat the patient.

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4. J Trauma Acute Care Surg. 2016 May;80(5):778-82. doi: 10.1097/TA.0000000000000985. When children become adults and adults become most hypercoagulable after trauma: An assessment of admission hypercoagulability by rapid thrombelastography and venous thromboembolic risk. Liras IN1, Rahbar E, Harting MT, Holcomb JB, Cotton BA.
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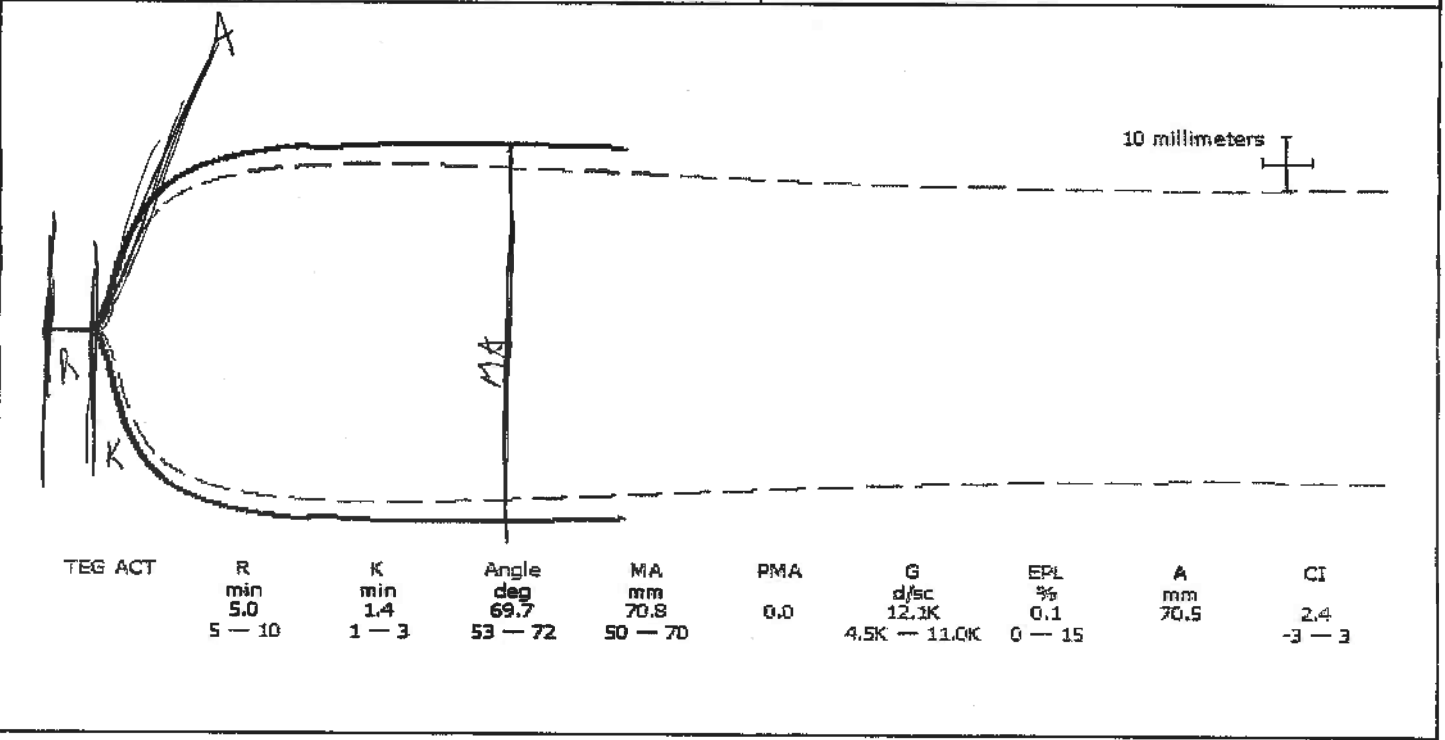
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TEG® Analysis

Generated: 6/16/2017 12:14:03PM

Database: \\gry00010\teg\patients.teg

Patient: ██████████ ID: 189455265 SSN: ██████████ Birthdate: Age: Gender:	Sample Date: 6/16/2017 Time on: 11:16 AM Off: 12:14 PM Duration: 58 min
Sample type: Citrated kaolin Description: BASELINE	Channel: 1 Sample status: Finished Temp: 37
Additional notes: 	Site ID: TEG Room Lab Operator ID: ██████████
	Ordered by:
	Platelet drugs administered: No Bleeding state:
	Patient temperature:
	Accession #: Analyzer SN: 09 E1-2725-MBB



Result reported: _____ Reported date: _____
 Reported by: _____
 Physician interpretation: _____

Sample data:	Units:	Normal values:	CPT/Billing codes:
R: 5.0	min <i>start of clot</i>	(5 - 10)	85347 Activated clotting time (R)
K: 1.4	min <i>fibrin kinetics</i>	(1 - 3)	
Angle: 69.7	deg <i>fibrin crosslinking</i>	(53 - 72)	85384 Fibrinogen activity (Angle)
MA: 70.8	mm <i>clot strength</i>	(50 - 70)	85576 Platelet aggregation (MA)
PMA: 0.0			
G: 12.1K	d/sc <high>	(4.5K - 11.0K)	
EPL: 0.1	%	(0 - 15)	
A: 70.5	mm		
CI: 2.4		(-3 - 3)	85999 Prothrombotic state (CI)
LY30: 0.1	%	(0 - 8)	85390 Fibrinolysis (EPL / LY30)

Interim values are surrounded by asterisks - Results final