

Introduction:

- Venous Thromboembolism (VTE) is a leading cause of maternal death
- The Royal College of Obstetricians and Gynecologists (RCOG) and the American Congress of Obstetricians (ACOG) have created guidelines for pharmacologic VTE prophylaxis. However, these guidelines vary significantly in the inclusion criteria for prophylaxis.¹
- Body mass index (BMI) is considered in the RCOG but not in the ACOG anticoagulation recommendations.^{1,2}
- The use of point of care viscoelastic testing (POCVT) is used to detect hypercoagulable states related to both pregnancy and obesity.³
- The aim of this study is to examine the correlation between ROTEM parameters with patient's BMI. Analysing Fibtrem, Extem, and Intem to assess fibrinogen, extrinsic and intrinsic coagulation pathways (functional assessment of the coagulation factors and platelets).

Methods:

- Data obtained from 681 patients presenting for labor at Yale-New Haven Hospital from 2015– 2021.
- All charts were reviewed by two obstetric anesthesiologists, with any discrepancies resolved by a third.
- Exclusion criteria included receiving medications affecting coagulation, tranexamic acid, blood products before conduction of ROTEM and inherited/acquired thrombophilia.
- Patients were sorted by BMI and age-adjusted mean differences of all ROTEM parameters, with a BMI cutoff of 30. (Table 1)

Results:

- A total of 467 charts were reviewed.
- **FIBTEM A10** by BMI is summarized in Table 1.
- After adjusting for age, patients with a BMI ≥ 30 demonstrated higher ROTEM parameters (figure 1), when compared to their counterparts (Table 1).

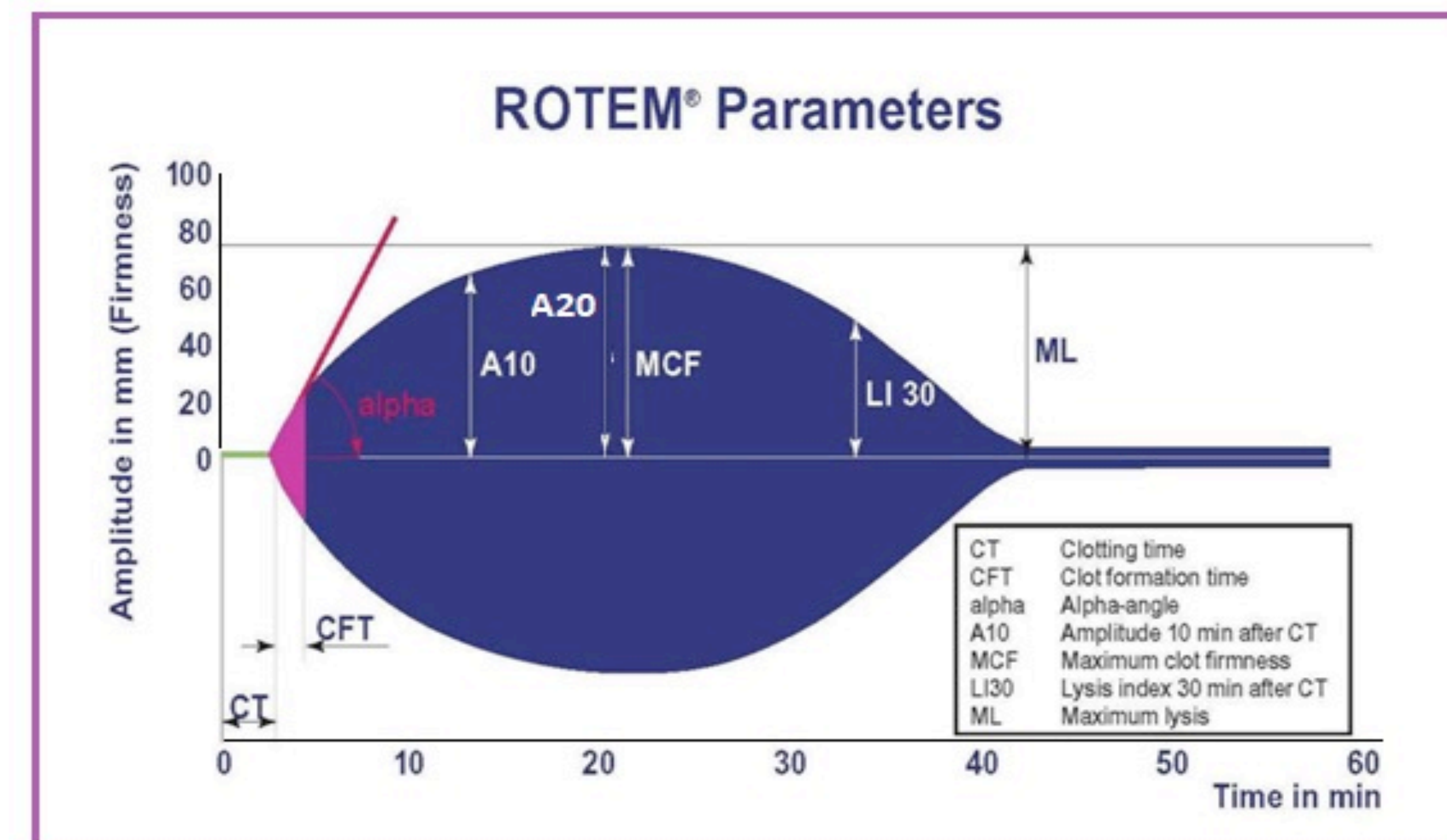


Figure 1 : Rotem parameters

Discussion:

- Patients with BMI ≥ 30 demonstrated higher ROTEM parameters compared to those with BMI < 30 , indicating a greater hypercoagulable state in obese patients.
- There are conflicting results when POCVT has been utilized to assess the effect of obesity on whole blood
- some studies corroborating our findings and others refute a statistically significant association between obesity and hypercoagulability.^{3,4}

Discussion cont. :

- Despite these contended results, clinically, obesity has demonstrated to pose a high-risk factor for VTE. Although our results are not confirmatory, they do support that obesity is associated with an increase in fibrinogen, FVIIa, amongst others⁵
- Our study supports the RCOG stance that weight should bear more weight when considering pharmacologic prophylaxis.

Table 1. Mean (SD) values of ROTEM parameters by BMI

ROTEM® Parameter	BMI < 30	BMI ≥ 30	p-value
n	148	318	
FIBTEM MCF	24.4 (5.9)	26.6 (6.7)	<0.001
FIBTEM A10	22.1 (5.2)	24.4 (5.9)	<0.001
FIBTEM A20	23.8 (5.6)	26.1 (6.3)	<0.001
EXTEM CT	59.8 (11.7)	63.6 (33.4)	0.068
EXTEM MCF	69.4 (6.0)	70.7 (6.7)	0.044
EXTEM A10	61.9 (7.4)	64.0 (7.3)	0.003
EXTEM A20	67.9 (6.5)	69.9 (5.8)	0.001
INTEM CT	165.5 (42.2)	163 (37.1)	0.53
INTEM MCF	67.0 (7.1)	68.7 (7.1)	0.014
INTEM A10	59.8 (8.2)	62.2 (7.5)	0.003
INTEM A20	66.1 (7.5)	68.0 (6.5)	0.008
A10 Amplitude 10 minutes after CT; A20 Amplitude 20 minutes after CT; CT Clotting Time; CFT Clot Formation Time; MCF Maximum Clot Firmness; SD Standard Deviation.			

References

1. Palmerola KL et al. BJOG. 2015; 123:2157.
2. Friedman, AM et al. AJOG. 2021; 225: 228-236.
3. O’Keefe D et al. ISLH. 2020; 43 (4): 458-467
4. Sharma S et al. IJOA; 22 (3): 113-118.
5. Elli S/ M et al. Blood Coagulation and Fibrinolysis 2017; 28: 50-55