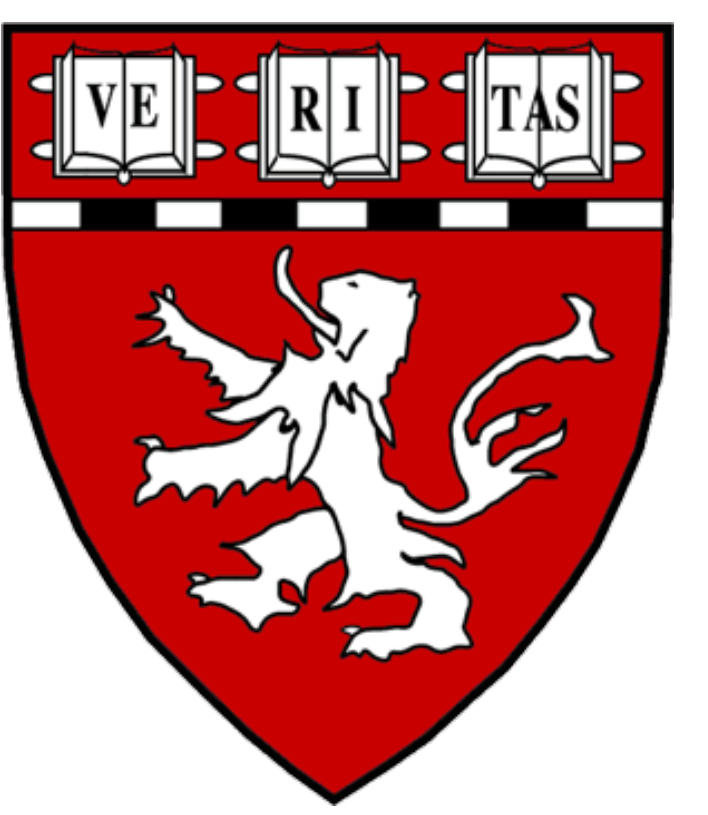




Utilizing Rotational Thromboelastography to Evaluate Coagulation Status in COVID-19 Positive Parturients



Samantha Abel MD MS; Mario I. Lumbreras-Marquez MBBS MMSc; Kathryn Gray, MD PhD; Michaela K. Farber MD MS; Dominique Arce MD MPH

WHAT WE KNOW:

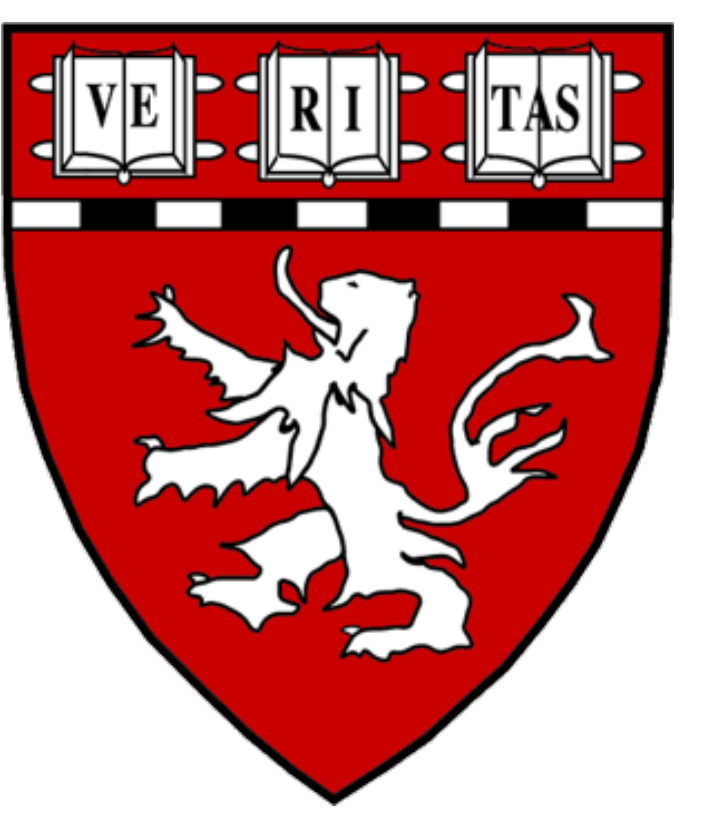
- Pregnancy is a known **hypercoagulable state**
→ Baseline ROTEM[®] parameters demonstrate elevated INTEM, EXTEM, & FIBTEM maximum clot firmness (MCF) and amplitude @ 10 min (A10) [1,2,3].
- Severe COVID-19 infection in non-pregnant patients → hypercoagulable changes demonstrated with ROTEM[®] [4,5].
- ROTEM[®] in pregnant patients → hypercoagulability w/ COVID-19 positivity, though degree of illness not reported [6].

WHAT WE WOULD LIKE TO KNOW:

- How does COVID-19 infection impact coagulation at different gestational ages?
- Does COVID-19 disease severity/presence of symptoms correlate with increased hypercoagulability?



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METHODS

- Prospective ROTEM® testing on COVID-19 + parturients
→ 1st trimester (n=1, excluded for small sample size), 2nd trimester (n=5), 3rd trimester (n=8)
- Comparison of 2nd and 3rd trimester ROTEM® data with trimester-specific obstetric ROTEM® reference ranges [3].

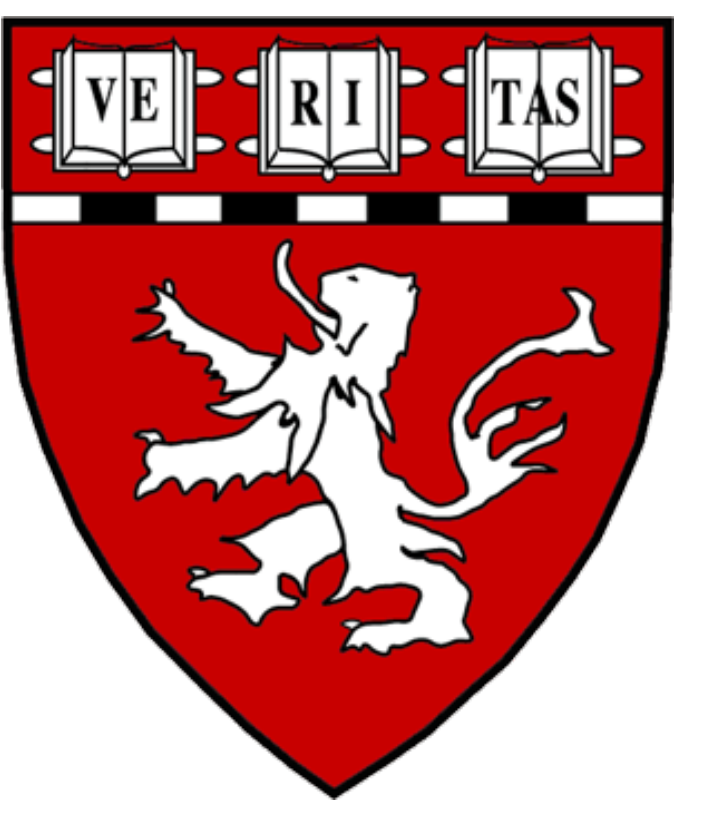
RESULTS

- ROTEM® **FIBTEM MCF significantly increased** in both trimester groups (2nd P=0.007, 3rd P=0.029)
- Stratifying by disease severity (asymptomatic/mild n=5, moderate n=3, severe n=5, and critical n=1), no significant differences found.

Table. Rotational thromboelastometry (ROTEM) values among pregnant individuals with active coronavirus disease-2019 (COVID-19).						
Parameter	Second trimester N=5	Second trimester reference ranges ^a N=9	P-value	Third trimester N=8	Third trimester reference ranges ^a N=58	P-value
<i>FIBTEM</i>						
CT, seconds, mean (SD)	44.33 (22.12)	58.33 (12.25)	0.229	53.00 (7.15)	54.33 (14.44)	0.615
CFT, seconds, mean (SD) ^b	113.33 (101.57)	--	NC	114.33 (106.33)	--	NC
MCF, mm, mean (SD)	29.33 (4.02)	20 (2.62)	0.007	29.17 (9.83)	19.67 (4.56)	0.029
LI30, %, mean (SD) ^c	100 (0.00)	100 (0.00)	NC	99.17 (2.23)	--	NC
CT = Clotting time; SD = Standard deviation; CFT = Clot formation time; MCF = Maximum clot firmness; LI30 = Lysis index at 30 minutes; NC = Not calculable.						



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CONCLUSION:

- COVID-19 infection in parturients causes hypercoagulable changes beyond that of baseline hypercoagulability of pregnancy
 - demonstrable with ROTEM[®] testing
 - irrespective of degree of illness or symptoms
- Taken with a previous study, these data justify careful venous thromboembolism prophylaxis in both symptomatic and asymptomatic COVID-19 patients in the peripartum period.