The influence of gestational diabetes mellitus on coagulation in healthy term pregnancy as assessed by rotational thromboelastometry

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Introduction & Aim
Rotational thromboelastometry (ROTEM®) is a point-of-care test of coagulation which has been used to demonstrate hypercoagulability in pregnant women and patients with diabetes mellitus separately. Diabetes mellitus is associated with hypercoagulability from activation of the coagulation system and a decrease in the fibrinolytic system. Prior studies using ROTEM® demonstrated subtle activation of the extrinsic pathway with a concomitant decrement in the intrinsic pathway of the coagulation cascade. Pregnancy is known to be a hypercoagulable state, but the effect combined with gestational diabetes mellitus (GDM) is unknown.

Methods
Ethics approval was granted for recruitment of women presenting for elective caesarean delivery. Women with any condition affecting coagulation were excluded. The ROTEM® parameters of EXTEM/FIBTEM amplitude at five minutes (A5), coagulation time (CT), maximum clot firmness (MCF) and clot formation time (CFT) were compared using the student’s t-test between two different groups: healthy pregnant women at term and pregnant women at term with GDM. The Cohen effect size calculation was performed using PASS 19 and was calculated to be 21 in the GDM group and 75 for the control group for 80% power and significance level of 0.05 using a 2-sided 2-sample equal-variance t-test.

Results
Seventy-five and 21 women presenting for elective caesarean delivery met inclusion criteria for the respective groups of healthy pregnant women at term with a normal body mass index and pregnant women at term with GDM. Mean age and median BMI values were comparable for both groups. There were no statistical differences found between the EXTEM and FIBTEM parameters analysed for the two groups.

Conclusions
There is no association between GDM and increased hypercoagulability as demonstrated by ROTEM® parameters in pregnant women presenting for elective caesarean delivery at term.