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ENDOGENOUS THROMBIN POTENTIAL DURING PREGNANCY AND ITS CORRELATION WITH PREGNANCY OUTCOMES

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Introduction

There is limited data on endogenous thrombin potential (ETP) in different trimesters of pregnancy. This study aimed to determine ETP levels in pregnancy, and its correlation with pregnancy outcomes.

Methods

We prospectively analysed the ETP level during each trimester of pregnancy of 172 women recruited from the Launceston General Hospital, Tasmania, Australia between January 2007 and January 2009.

Funding

This research received a grant from the Clifford Craig Medical Research Trust, Launceston, Tasmania, Australia and Siemens, Marburg, Germany supplied ETP tests.

	Trimester 1			Trimester 2			Trimester 3		
	N=179; n=169			N=189; n=196			N=187; n=167		
	Mean	±1 S.D.	±2 S.D.	Mean	±1 S.D.	±2 S.D.	Mean	±1 S.D.	±2 S.D.
Lag time (seconds)	22.49	1.94	3.88	22.76	1.87	3.75	22.57	2.17	4.33
ETP (nmol/L.min)	114.85	12.05	24.10	111.50	11.02	22.04	108.64	11.89	23.78
Peak Concentration(nmol/L)	111.20	10.19	20.38	108.19	9.62	19.24	105.60	10.49	20.97
Time to Peak (seconds)	69.48	10.28	20.55	71.32	11.93	23.86	71.66	11.35	22.70

Summary table of Thrombin Generation Levels by trimester, N= number of samples & n= number of women

Results

The mean ETP level was 115 nmol/L (SD 12), 112 nmol/L (SD 11) and 109nmol/L (SD 12) in the first, second and third trimester respectively. Mixed effects modelling showed considerable variation in ETP levels between participants (110.19 nmol/L, SE 12.89) and between repeat measures within individuals (26.48 nmol/L, SE 1.92).

There was no statistically significant association between ETP levels and blood group, history of thrombosis or pregnancy outcomes. There was a small number of women who experienced some pregnancy related complications, not yet statistically significant, due to the small number of occurrences in our limited sample.

Discussion

Despite ETP level variation during the trimesters of pregnancy, our data suggests a consistent ETP level throughout pregnancy for the population average and when allowing for variation between individuals and across repeat measures.

No statistically significant associations were identified between ETP levels and pregnancy outcomes such as gestational diabetes, pre-eclampsia, hyperemesis gravidarum, placenta previa and antepartum haemorrhage. Further studies are warranted with a larger sample size to examine possible correlation between ETP and complications of pregnancy.

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