"Maternal serum placental growth factor and pregnancy-associated plasma protein A measured in the first trimester in Mongolia"

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Introduction

Mongolian women's of the biochemical markers that have been investigated, only maternal serum placental growth factor (PlGF) and pregnancy associated plasma protein-A (PAPP-A) has been shown to be of value. Placental growth factor (PlGF) is a dimeric glycoprotein that belongs to the angiogenic vascular growth factor family. It is predominantly expressed in trophoblasts and it plays an important role in placental development during pregnancy. Dysfunctions in the production and expression of the molecule lead to impaired trophoblast invasion and insufficient vascular remodeling of the spiral arteries PAPP-A stands for Pregnancy Associated Plasma Protein A. It is a protein that is released by the placental trophoblasts during pregnancy. It is believed to play an essential role in the early growth of placenta. The PAPP-A levels are tested when screening tests are conducted in the first trimester of pregnancy, that is between 11 to 13 weeks of gestation. The biochemical markers vary depending on the nationality, women age and gestational period.[1-4]

Differences in PAPP-A and PlGF levels by ethnicity have been observed, with increased levels in Mongolian pregnant women. A study on identifying among Mongolian women's level has not been carried out yet.

Aim

To identify placental growth factor (PIGF) of blood serum and the average level of pregnancy associated plasma A protein (PAPP-A) in women who are 11^0 to 13^{+6} weeks pregnant.

Method

The study was conducted in 200 pregnant women with 11-13^{+6} weeks by using the cross sectional method. Maternal plasma PAPP-A, PlGF were measured using Perkin Elmer DELFIA kits by fluoroimmunoassay.

Discussion & Conclusion

PlGF and PAPP-A are potentially useful as first-trimester markers for SGA infants and some hypertensive disorders of pregnancy in Mongolia. Results are consistent with the hypothesis that impaired placentation plays a role in the pathogenesis of PE and SGA.

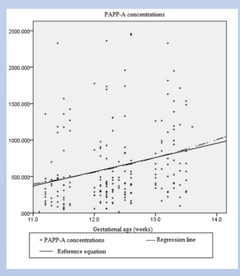
Result

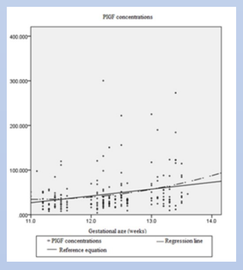
The median PlGF 11 week (0.830 MoM) , PAPP-A (0.860 MoM) and PlGF 13 week (1.220 MoM) , PAPP-A (1.630.0 MoM) was a significant increased association between PlGF and PAPP-A.

PlGF (pg/ml), PAPP-A (mU/l) Protein level, Gestational age

	Gestational age	Too	Mean	Standart deviation	95% CI		P value
					Low	High	
PlGF (pg/ml)	11^0-11^{+6}	56	34.23	24.02	27.80	40.67	p<0.001 *
	12^0-12^{+6}	90	49.62	70.25	34.91	64.34	
	13^0-13^{+6}	54	64.53	54.52	49.65	79.41	
	Total	200	**49.34**	57.32	41.34	57.33	
PAPP-A (mU/l)	11^0-11^{+6}	56	482.94	481.88	353.89	611.99	p<0.001*
	12^0-12^{+6}	90	602.32	576.09	481.66	722.98	
	13^0-13^{+6}	54	815.7	516.05	674.84	956.56	
	Total	200	**626.51**	547.09	550.22	702.79	

Gestational age, PlGF, PAPP-A protein median





PlGF (r=0.183, p<0.001, R2=0.066) and PAPP-A (r=0.255, p=0.009, R2=0.062) protein concentrations increased with increasing gestational age.

Gestational age	n (%)	Median (IQR) PAPP-A mU/L	Median (IQR) PIGF pg/mL
11^0-11^6	56 (28.0)	358.7 (143.4-498.6)	27.7 (17.5-43.9)
12^0-12^6	90 (45.0)	392.2 (265.0-746.2)	32.3 (23.4-41.6)
13^0-13^6	54 (27.0)	677.1 (404.5-1182.8)	41.0 (29.7-84.6)

Gestational age, serum PlGF, PAPP-A protein MoM values, Interquartile range

Gestational age	N=(%)	MoM PAPP-A mU/L median (IQR)	MoM PIGF pg/mL, median (IQR)
11^0-11^6	56 (28.0)	0.86 (0.35-1.20)	0.83 (0.52-1.31)
12^0-12^6	90 (45.0)	0.95 (0.64-1.80)	0.96 (0.70-1.24)
13^0-13^6	54 (27.0)	1.63 (0.98-2.85)	1.22 (0.89-2.53)

Reference

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