

Pregnancy outcomes associated with low PAPP-A levels

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Objective: To assess pregnancy outcomes for a Pregnancy Associated Plasma Protein A (PAPP-A) level of less than or equal to 0.415 MoM in our unit (Leeds, UK). To establish if lower levels of PAPP-A are associated with worse outcomes. We wish to provide women in our area with an up to date resource that allows them to be informed with regards to pregnancy outcomes.

Methods: Retrospective review of case notes assessing pregnancy outcome in 300 women with a low PAPP-A measurement of less than or equal to 0.415 MoM. These pregnancies were identified during first trimester screening in a time period from November 2013 to December 2015. Ethics approval was not necessary.

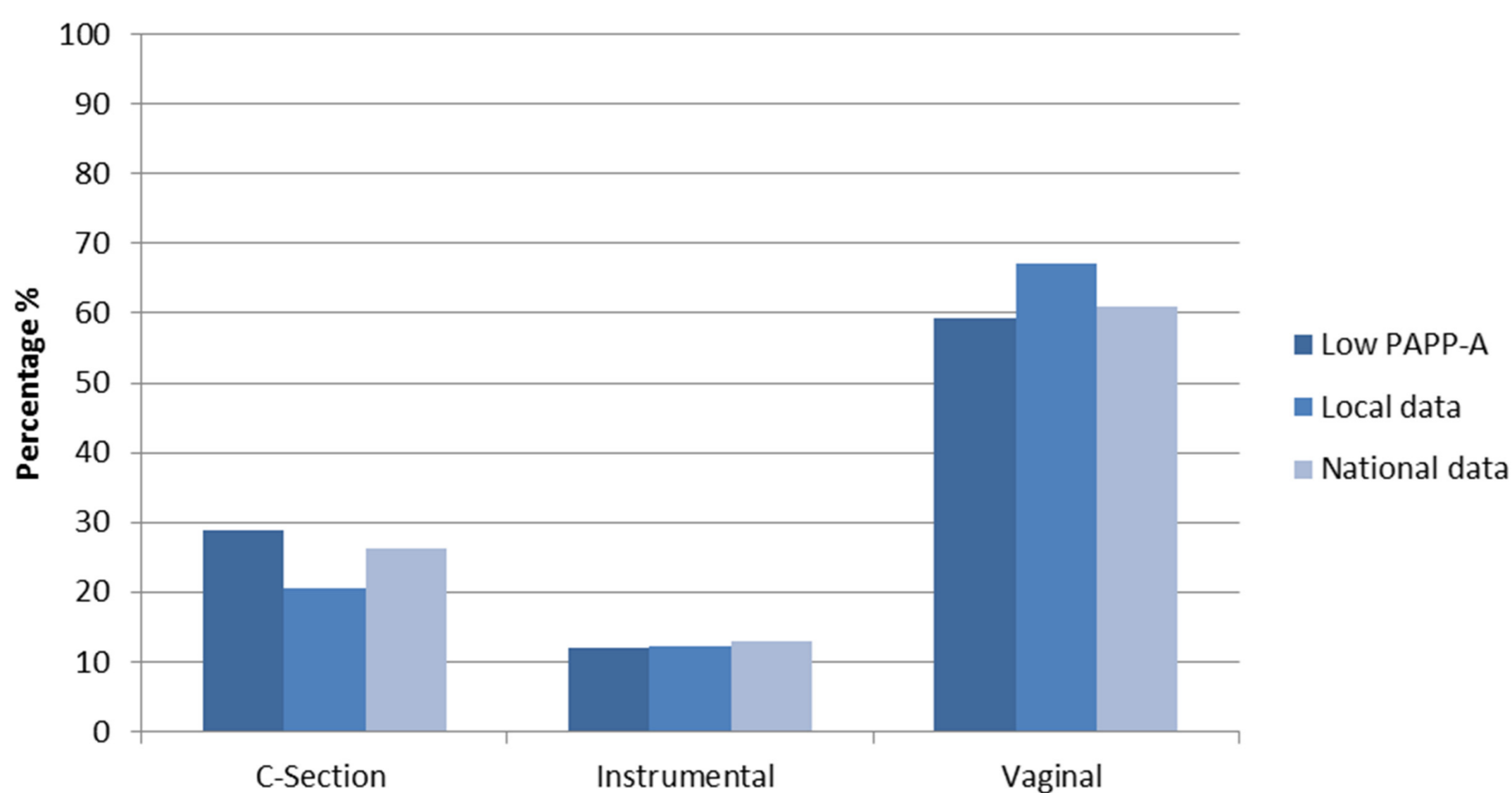
Results

PAPP-A level (MoM)	Number	Screen positive for Down Syndrome	Termination	Small for Gestational Age	Maternal Complications	Mode of Delivery		
						LSCS	Instrumental	Normal Delivery
<0.10	3(1%)	2 (66.6%)	1 (33.3%)	1 (33.3%)	1 (33.3%)	2 (100%)	0	0
0.11-0.20	23(7.3%)	3 (13.7%)	1 (4.5%)	10 (45%)	3 (13.7%)	8 (38.1%)	3(14.4%)	10 (45.5%)
0.21-0.30	90 (30%)	7 (7.9%)	0	23 (25.9%)	19 (21.4%)	28 (31.5%)	8 (8.9%)	53 (59.6%)
0.31-0.40	160 (53.3%)	12 (4%)	2 (1.2%)	41 (25.8%)	24 (15%)	38 (24.2%)	21 (13.4%)	98 (62.4%)
>0.40	24 (8%)	0	0	5 (20.1%)	3 (12.5%)	7 (29.2%)	3 (12.5%)	14 (58.3%)
Total:						28.9%	11.9%	59.2%

Our findings show that there was a higher rate of Caesarian Sections (28.9%) in the low PAPP-A group compared to local (20.6%) and national (26.2%) data in the same time frame. Lower levels of PAPP-A were associated with higher caesarian section rates 38.1% (0.11-0.20 MoM) versus 24.2% (0.31-0.40 MoM). Conversely, normal vaginal delivery was more common with a higher PAPP-A at 62.4% (0.31-0.40 MoM) versus 45.5% in the 0.11-0.20 MoM group. Twenty-four percent of women underwent induction of labour, 24% of these for presumed intrauterine growth restriction.

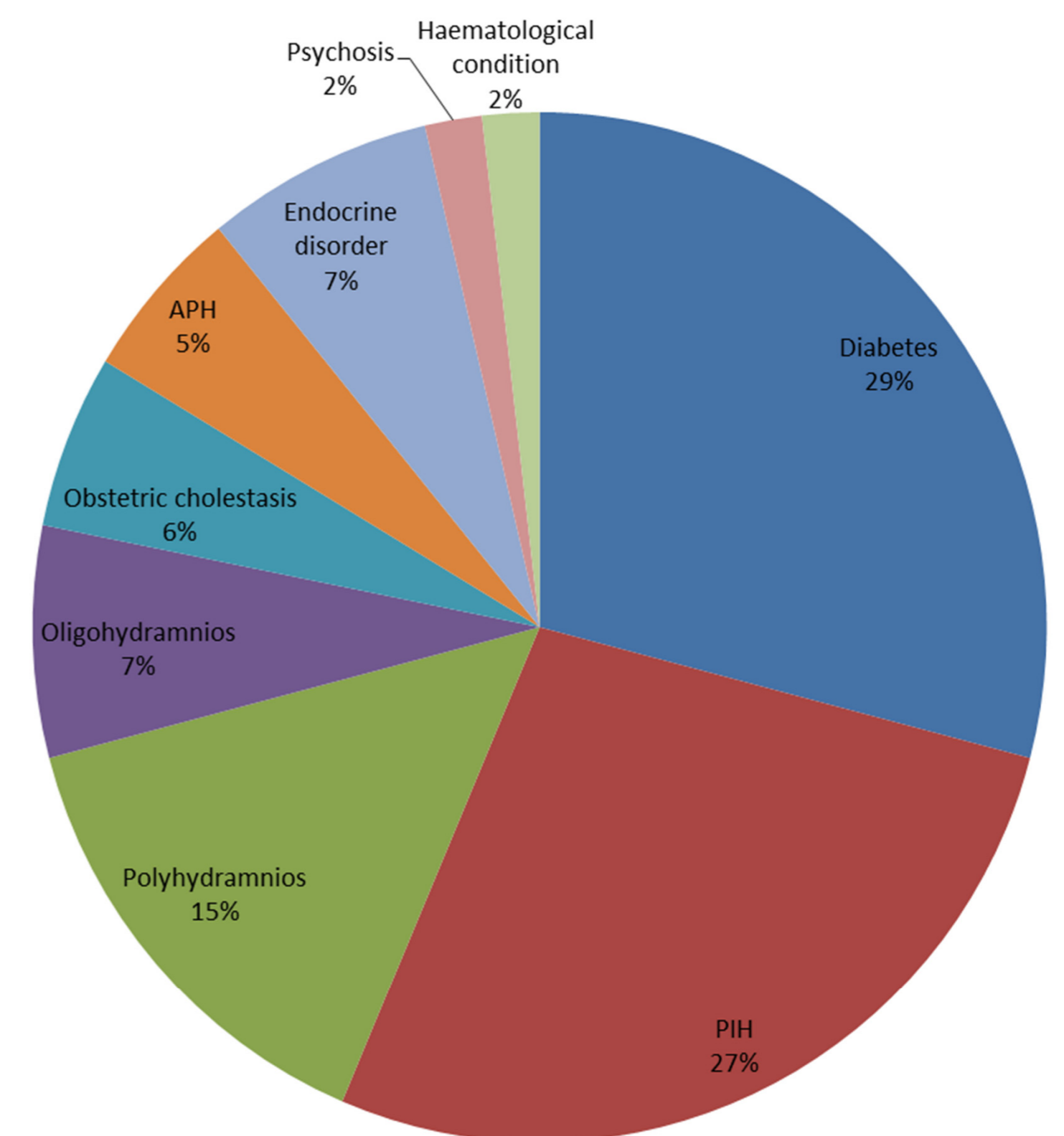
A lower PAPP-A level was associated with a higher incidence of maternal complications such as diabetes and pregnancy induced hypertension (PIH) 33.3% in the lowest level of PAPP-A (<0.10 MoM) compared to 12.5% at the higher level (>0.40 MoM). The overall rate of maternal complications in the cohort was 17.7% with the most prevalent maternal complications being Diabetes (30.2%), Pregnancy Induced Hypertension (28.3%) and Polyhydramnios (15.1%).

Mode of Delivery



There was a higher incidence of Small for Gestational age babies (SGA) with 27% of babies born below the 10th centile on Customised Growth Chart, confirming that a low PAPP-A is a risk factor for a SGA baby (2). The outcome for these pregnancies were further assessed. It was found that 27.5% of pregnancies classified as <10th centile had had a previous SGA baby. The incidence of preterm birth was higher in the group of babies classified as SGA (33.8%) versus 7.9% in the non-SGA group.

Maternal complications associated with low PAPP-A levels

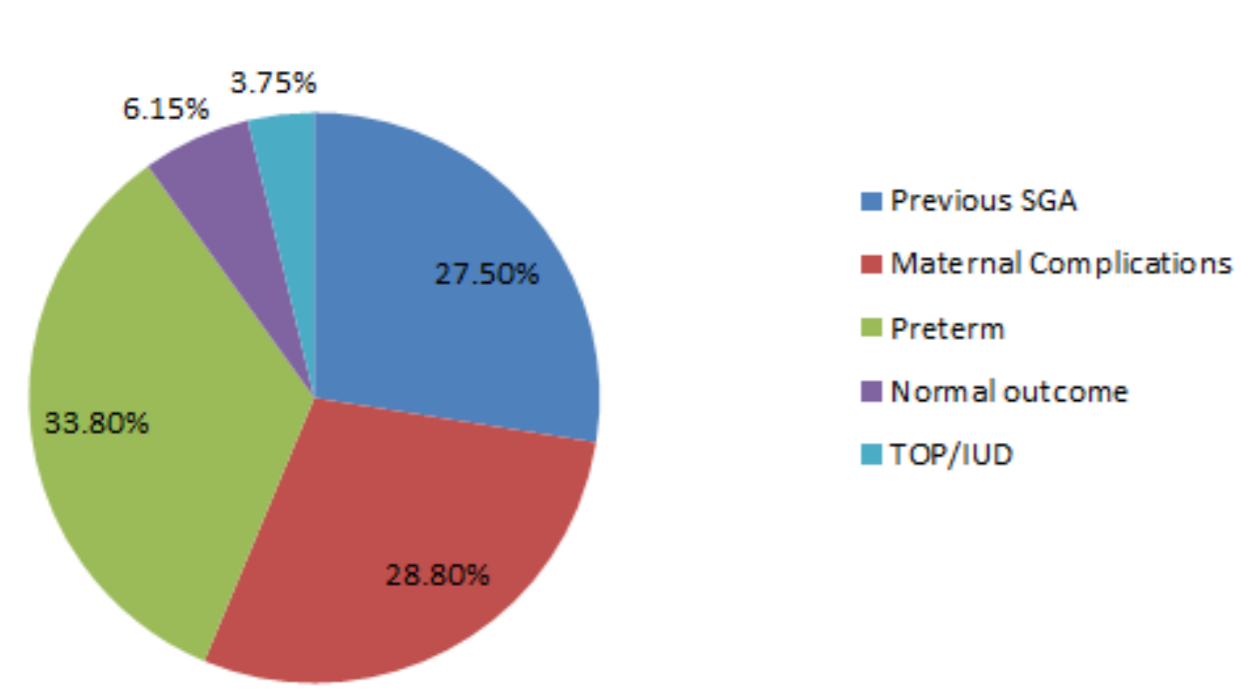


Conclusion: Lower levels of PAPP-A are associated with an increase in adverse maternal complications and an increase in Caesarian Section rate. It also confirms that there is an association between low PAPP-A and small for gestational age babies and preterm birth.

References:

- Health and Social Care Information Centre <http://www.hscic.gov.uk/>. Accessed 14th March 2016.
- The Investigation and Management of the Small for Gestation Age Fetus, Green-top Guideline No.31, Royal College of Obstetricians and Gynaecologists, January 2014

% Outcomes of SGA ≤ 10th Centile



% Outcomes in non-SGA patients

