
Outcomes in low PAPP-A pregnancies: are we under-investigating?

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Interests

Declaration of interests – none to declare.

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Background

Pregnancy-associated plasma protein A:

- IGF-binding protein protease, produced by the placenta
- Forms part of the first trimester combined screening test

Low PAPP-A in first trimester independently associated with adverse pregnancy outcome,^{1,2} including:

- Intrauterine growth restriction
- Development of pre-eclampsia
- Preterm delivery
- Stillbirth

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Background

RCOG Green-top guideline no. 31 – The Investigation and Management of the Small-for-Gestational Age Fetus³:

- “A low level of the first trimester marker PAPP-A should be considered a **major risk factor** for delivery of an SGA neonate”
- Suggests a cut-off of <0.40 MoM (multiples of the mean) to define ‘low’

Local guidance⁴:

- Low PAPP-A defined as <0.30 MoM
- Maternal uterine artery Doppler assessment, fetal growth surveillance, nulliparous schedule of care for blood pressure monitoring

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Background

So if national guidance defines low PAPP-A as <0.40 MoM,

but we are using <0.30 MoM,

are we missing an opportunity to monitor a high-risk group?

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Aims

To investigate pregnancy outcome and rates of small-for-gestational age, preterm delivery and stillbirth in those women with a first trimester PAPP-A result of <0.30 MoM in our unit.

To investigate the same outcomes in those women with a first trimester PAPP-A result of $0.30 - 0.39$ MoM, and compare the two groups.

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Methods

All women with PAPP-A <0.40 MoM between October 2013 to September 2016 inclusive were retrospectively identified from screening records.

Those not yet delivered were excluded.

Data collected from electronic records (PAPP-A, screening risk and outcome of any prenatal testing, pregnancy outcome, gestation at delivery, birthweight).

Birthweight centiles were calculated using the Hadlock formula.

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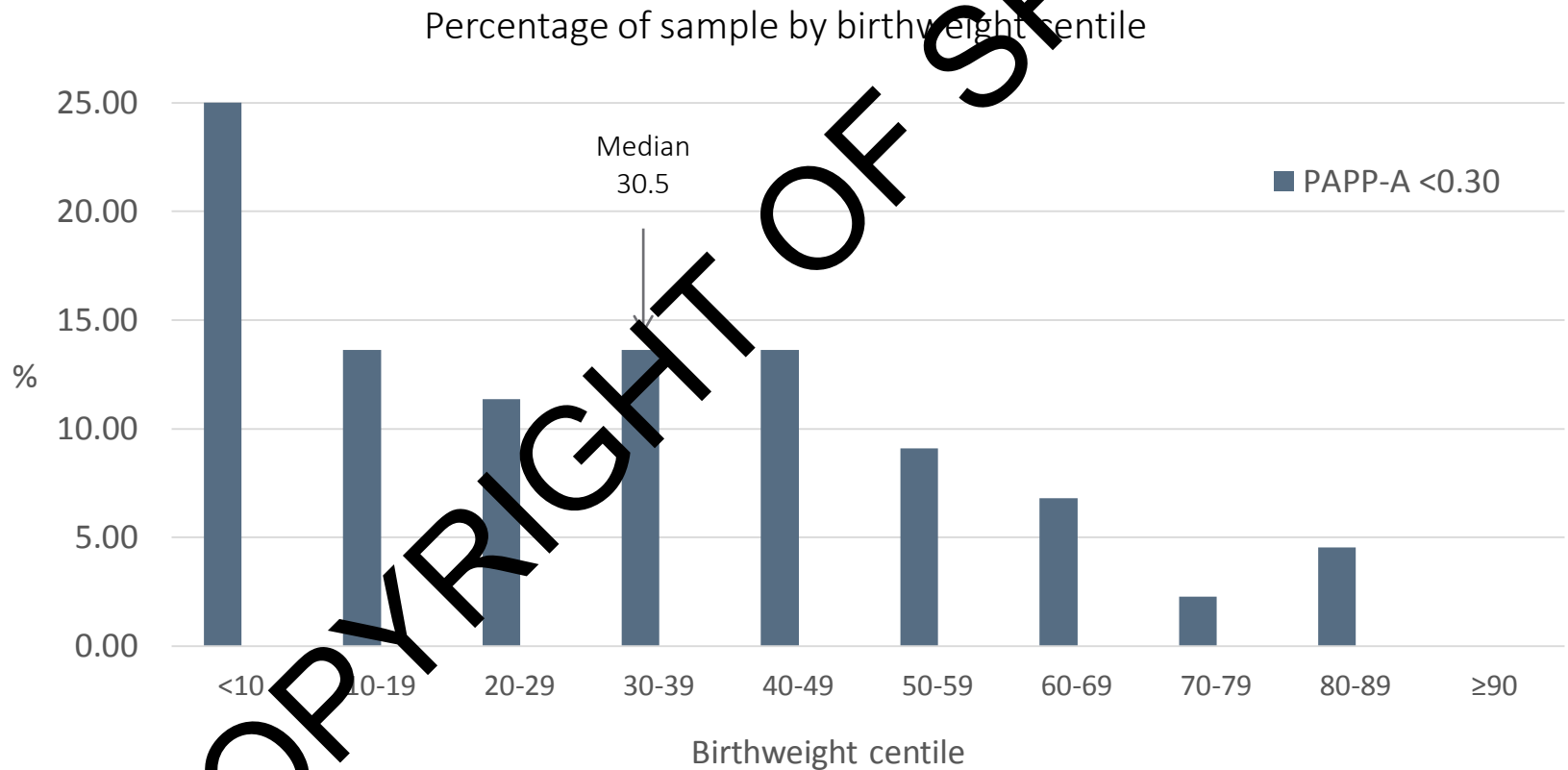
Results - summary

	PAPP-A <0.30 MoM	PAPP-A 0.30 – 0.39 MoM
N	49	98
Live births	43 (88%)	90 (92%)
Miscarriages	2 (16/40 abruption, 18/40 infection)	3 (13/40 Turners, 15/40 hydrops, 16/40 infection)
Terminations	3 (2 x T21, severe hydrops)	4 (Chr3 deletion, renal agenesis, T18)
Stillbirths	1 (39/40)	1 (30/40 abruption)
Preterm deliveries*	6 (14%)	6 (7%)
Birthweight <10 th centile [†]	11 (25%)	20 (22%)

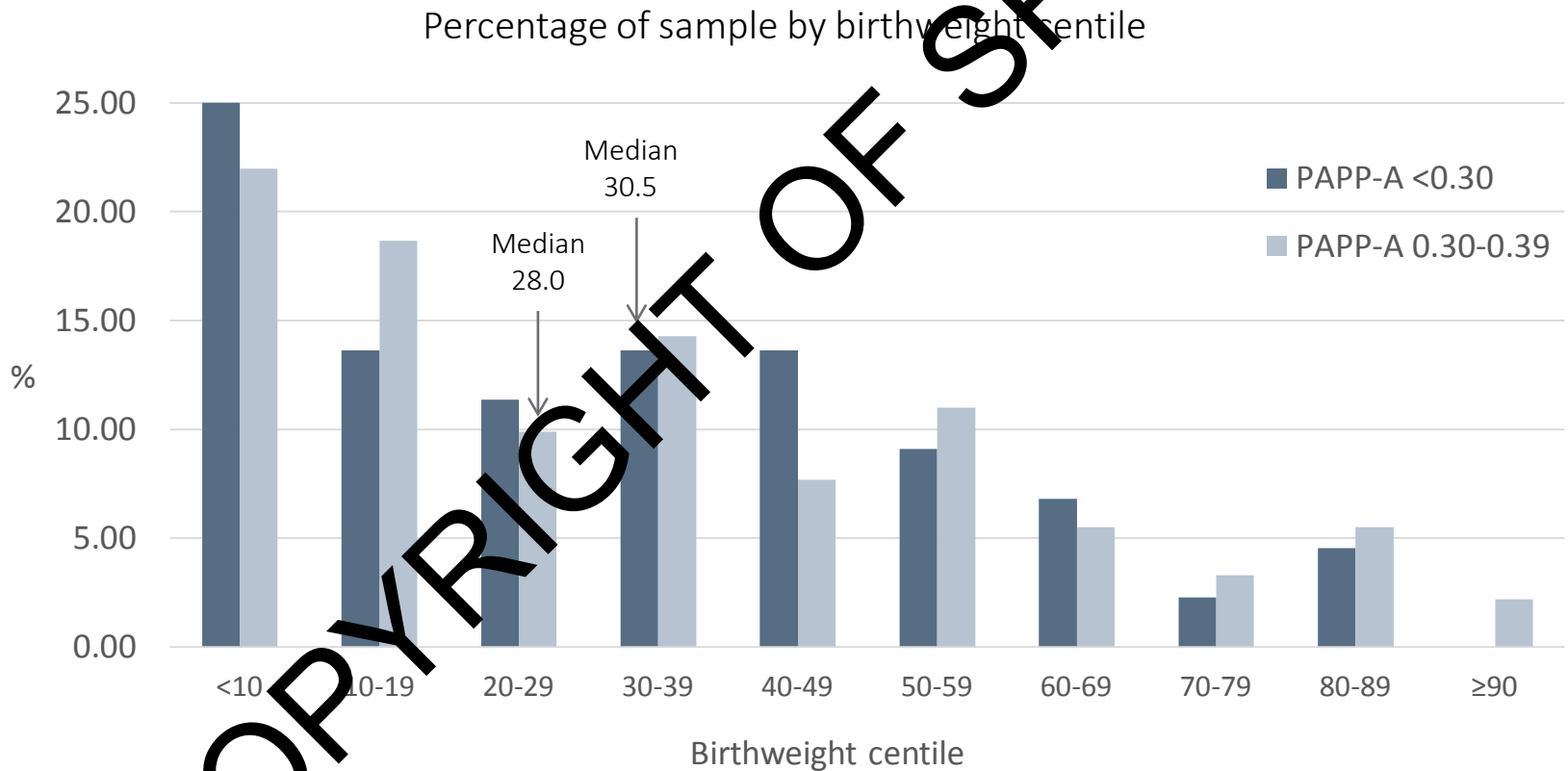
* Percentage of live births.

† Percentage of live births and stillbirths.

Results - birthweights



Results - birthweights



Discussion

- 8% of pregnancies in the sample ended by miscarriage or termination
- Small-for-gestational age rate was similar between the two groups, at 25% with PAPP-A <0.30 MoM and 22% with PAPP-A 0.30-0.39 MoM
- 1 stillbirth in each group, but sample size small
- Recent move to using customised growth charts

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Conclusions

- High-risk pregnancies
- Difficult to justify ongoing use of the lower cut-off in our unit based on these data
- Discussion is needed at the regional level regarding further investigation in a larger sample, and whether the regional definition of low PAPP-A needs to be brought into line with national guidance

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References

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Thank you

Any questions?

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