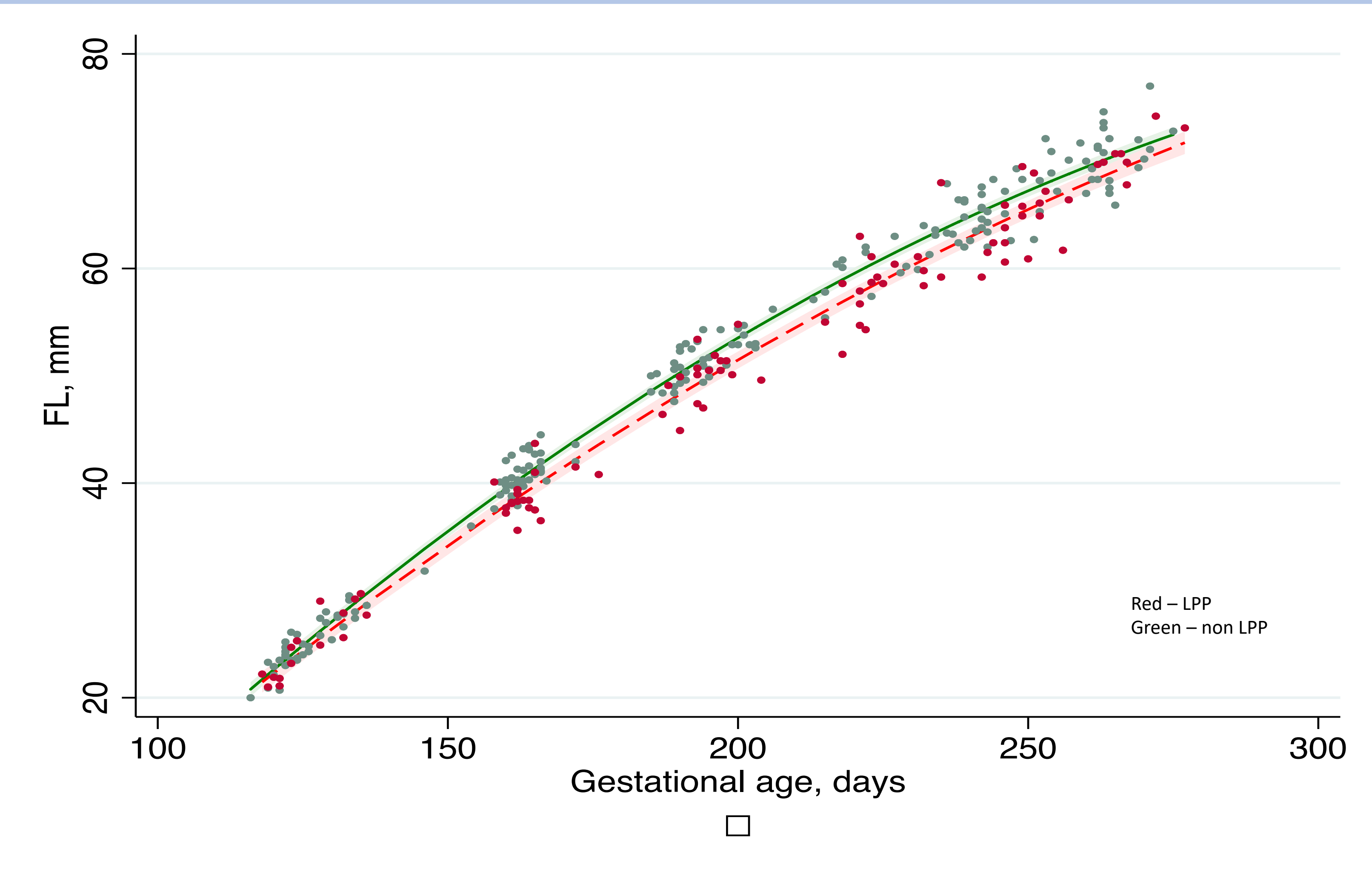


Skeletal growth is reduced in low PAPP-A pregnancies independent of placental dysfunction



Asymmetric differences in fetal biometry in low PAPP-A pregnancies at low risk of placental dysfunction

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INTRO

- Pregnancy Associated Plasma Protein A (PAPP-A) is part of the Insulin-like Growth Factor (IGF) signalling pathway
- IGF regulates skeletal growth
- 1st trimester serum PAPP-A <5th centile (LPP) is associated with:
 - placental dysfunction (PD)
 - fetal growth restriction (FGR)

METHODS

- N = 1564
- January 2010 - December 2018
- Singleton pregnancies with risk factors for PD
- Placental dysfunction if USS at 22-24 weeks
 - Mean UtAD PI >90th centile;
 - EFW <10th centile;
 - Placental width <10cm
- Multi-level linear regression analysis performed

RESULTS

- Femur length (FL; p<0.005) and head circumference (HC; p<0.001) were significantly smaller across gestation in pregnancies with LPP compared to non-LPP
 - This difference remained significant, but exaggerated, after adjusting for placental dysfunction
- There was no difference in abdominal circumference (AC; p=0.832) between the 2 groups
- Independent of FGR (Table 1), PAPP-A:
 - Strongly correlated with femur length
 - Uterine artery dopplers significantly interacted with this
 - Placental size (PSA) and fetal growth restriction (FGR) had no interaction
- Did not correlate with AC

DISCUSSION

In the absence of signs of placental dysfunction, fetuses from women with low PAPP-A have reduced skeletal growth across gestation

(FGR; OR 2.8 95%, CI 2.0–4.0). <3rd centile

What are the RF for PD?
Tell me about IGF signalling pathway

- LPP (751/1564 = 48%)
FGR rate similar in both LPP and non LPP groups (9.4%Vs 8%)
- 30% (233) had PD
 - 18.5% FGR (43/233) Vs 5.4% (28/518) without PD

Table 1 Fetal Biometry mixed linear regression adjusted for placental assessment and FGR

FL	Coefficient	Standard Error	p value	(95% C.I.)
PAPP-A	0.644	0.28	0.022	(0.094 - 1.19)
UtA	2.07	0.177	0.005	(0.61 - 3.53)
Placental Size	-0.019	-1.15	0.248	(-0.05 - 0.01)
FGR	-2.08	-11.73	0.001	(-2.43 - 1.74)
Placental size only	0.04	2.81	0.005	(0.013 - 0.07)
AC				
PAPP-A	2.25	1.6	0.11	(-0.51 - 5.01)
UtA	0.48	0.13	0.89	(-6.8 - 7.8)
Placental Size	-0.12	-1.47	0.14	(-0.29 - 0.04)
FGR	-2.08	-14.4	0.001	(-2.4 - 1.73)
Placental size only	0.33	4.1	0.001	(0.16 - 0.48)
HC				
PAPP-A	2.97	2.88	0.004	(0.94 - 4.99)
UtA	4.33	1.58	0.114	(-1.04 - 9.7)
Placental Size	-0.16	-2.58	0.01	(-0.28 - -0.03)
FGR	-6.87	-10.5	0.001	(-8.15 - -5.58)
Placental size only	0.24	4.15	0.001	(0.13 - 0.35)

