

Association of low levels of Placental Growth Factor (PIGF) and Fetal Growth Restriction (FGR) in a setting with a high prevalence of diabetes

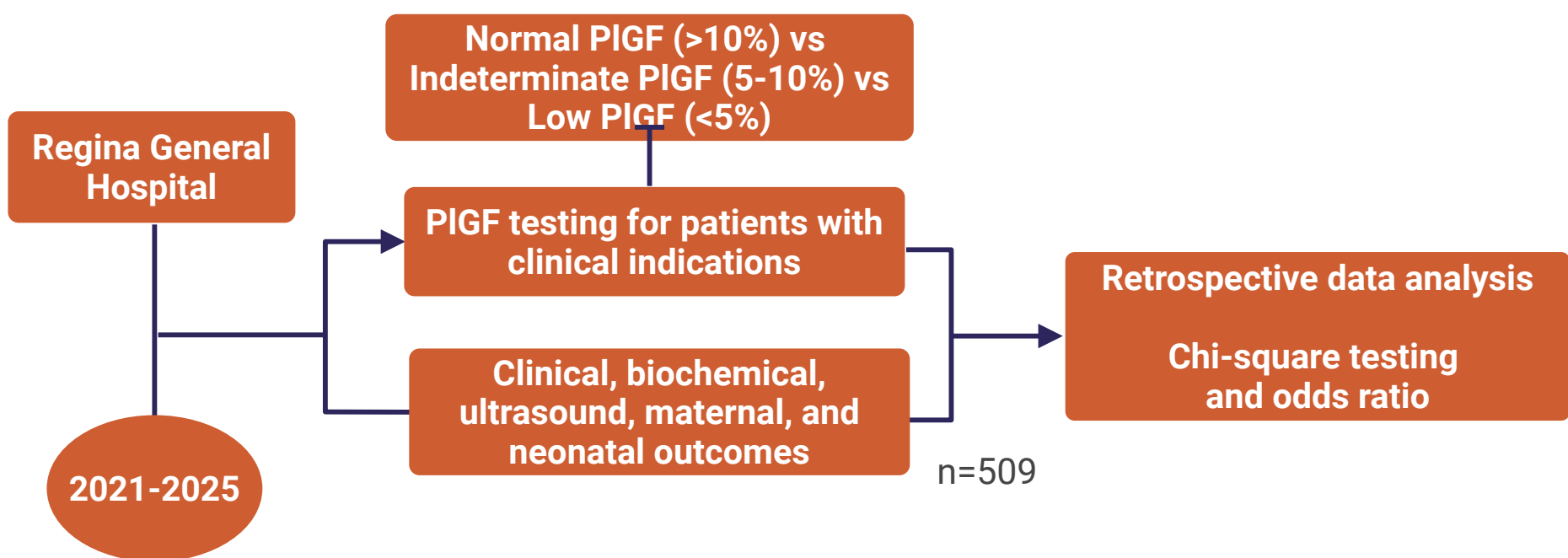
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INTRODUCTION

- Low maternal circulating PIGF levels have been consistently associated with placental dysfunction and its corresponding clinical manifestations.
- Routine implementation of PIGF testing in Canadian obstetric care remains limited.
- Objective was to verify the association between FGR and maternal PIGF levels in a population with a high prevalence of diabetes during pregnancy.

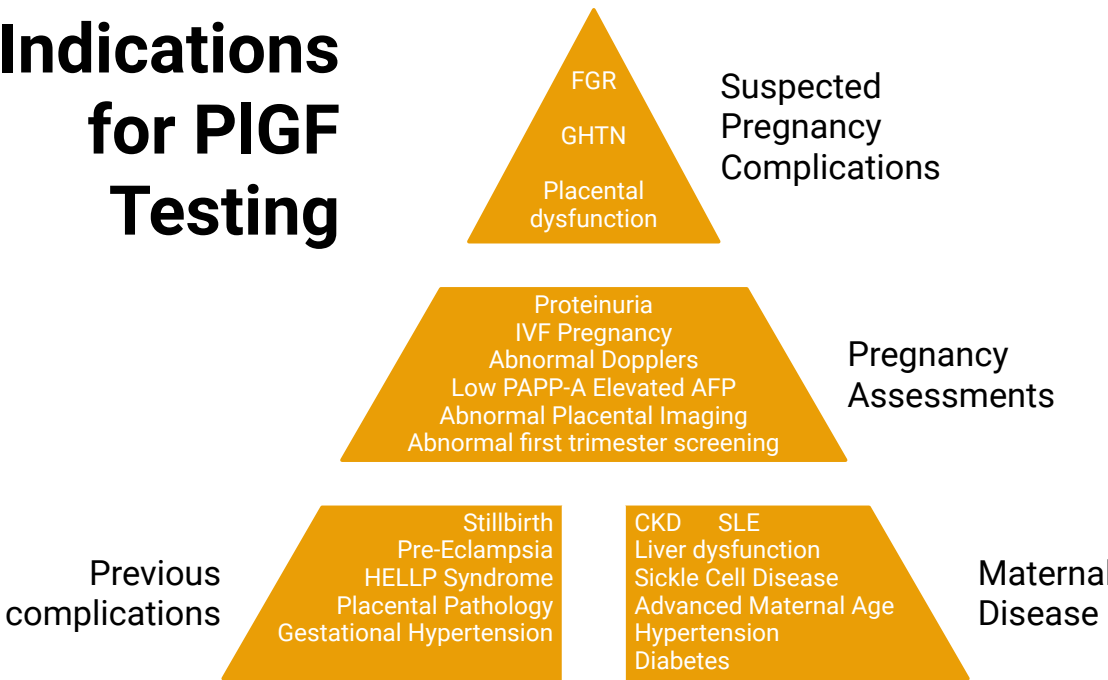
METHODS

- Retrospective cohort study with 509 pregnant patients who underwent PIGF testing between 12+0 and 36+0 weeks of gestation at the Fetal Assessment Unit in Regina General Hospital between 2021 and 2025.
- Patients were categorized based on PIGF levels into three groups: normal (≥ 10 th centile), inconclusive (5th–9th centile), and low (≤ 5 th centile).
- A chi-square analysis of 509 patients was used to assess the association between PIGF levels and FGR ($< 10\%$ ile).
- Study approved by REB-USask #Bio 3702



EXTRA INFORMATION

Indications for PIGF Testing



Gestational age (wk)	Low PIGF			Normal PIGF		
	2.5th centile	5th centile	10th centile	10th centile	50th centile	50th centile
12	19	21	25	40		
13	23	26	30	49		
14	28	32	36	63		
15	35	42	49	84		
16	45	53	64	110		
17	57	67	80	139		
18	69	81	96	166		
19	80	94	111	191		
20	91	106	125	217		
21	101	118	141	246		
22	110	131	157	280		
23	120	144	175	321		
24	131	159	196	368		
25	140	173	216	420		
26	148	186	234	471		
27	153	194	248	513		
28	153	196	252	539		
29	147	189	246	542		
30	136	175	229	523		
31	119	155	206	489		
32	103	134	179	444		
33	89	116	155	396		
34	78	101	134	349		
35	71	90	118	305		
36	67	83	106	267		

PIGF Levels according to Gestational Age by McLaughlin (2022) *AJOG*



RESULTS

- Of the 509 patients in our dataset, 207 (40.7%) had some form of diabetes, with 123 (24.2%) having GDM, 16 (3.1%) having T1DM and 68 (13.4%) having T2DM.
- In this population, we were able to demonstrate a significant association between low PLGF levels ($< 5\%$ ile) and FGR ($< 10\%$ ile), with a p-value < 0.0001 and OR 4.6 (CI 95% 2.7-7.9).

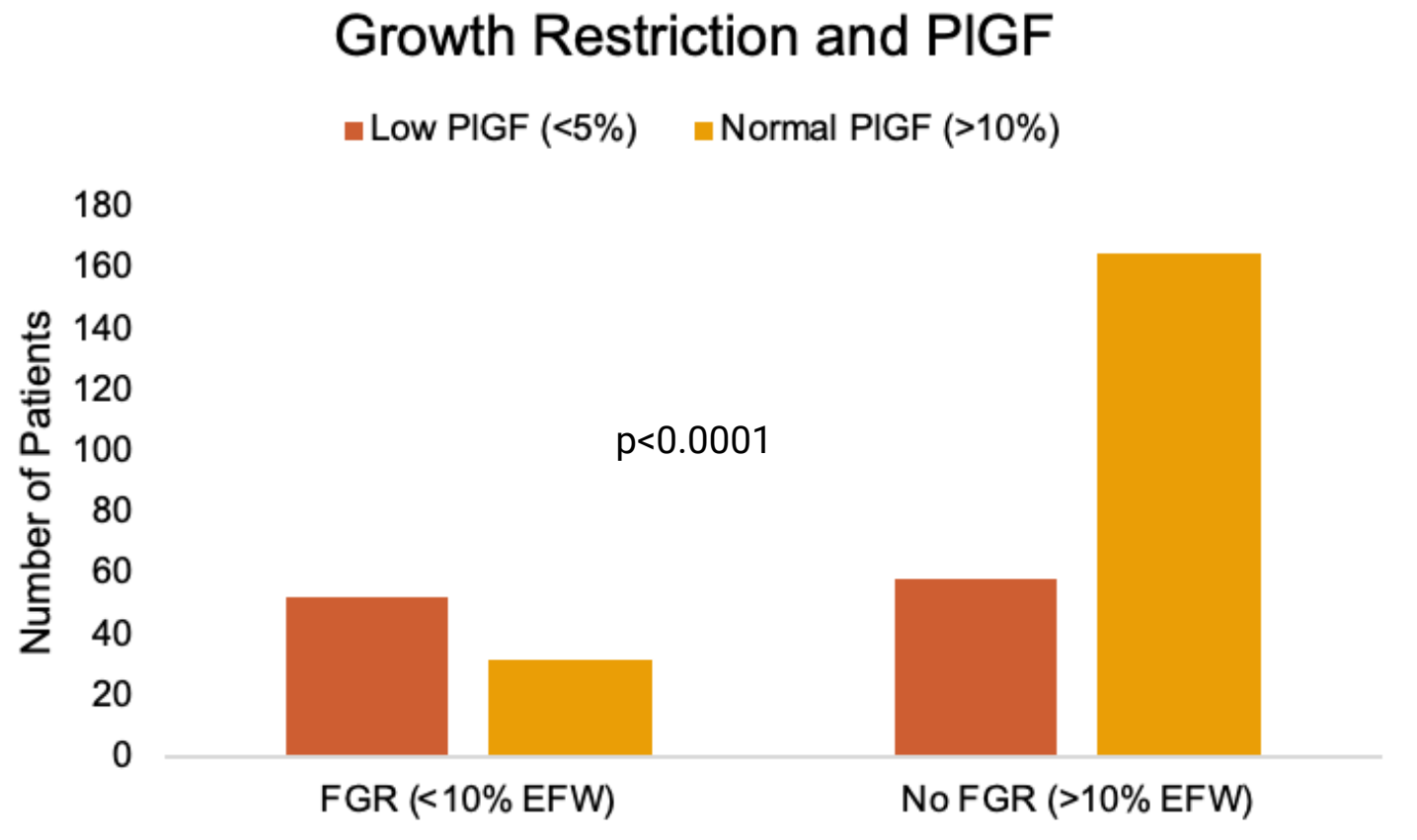
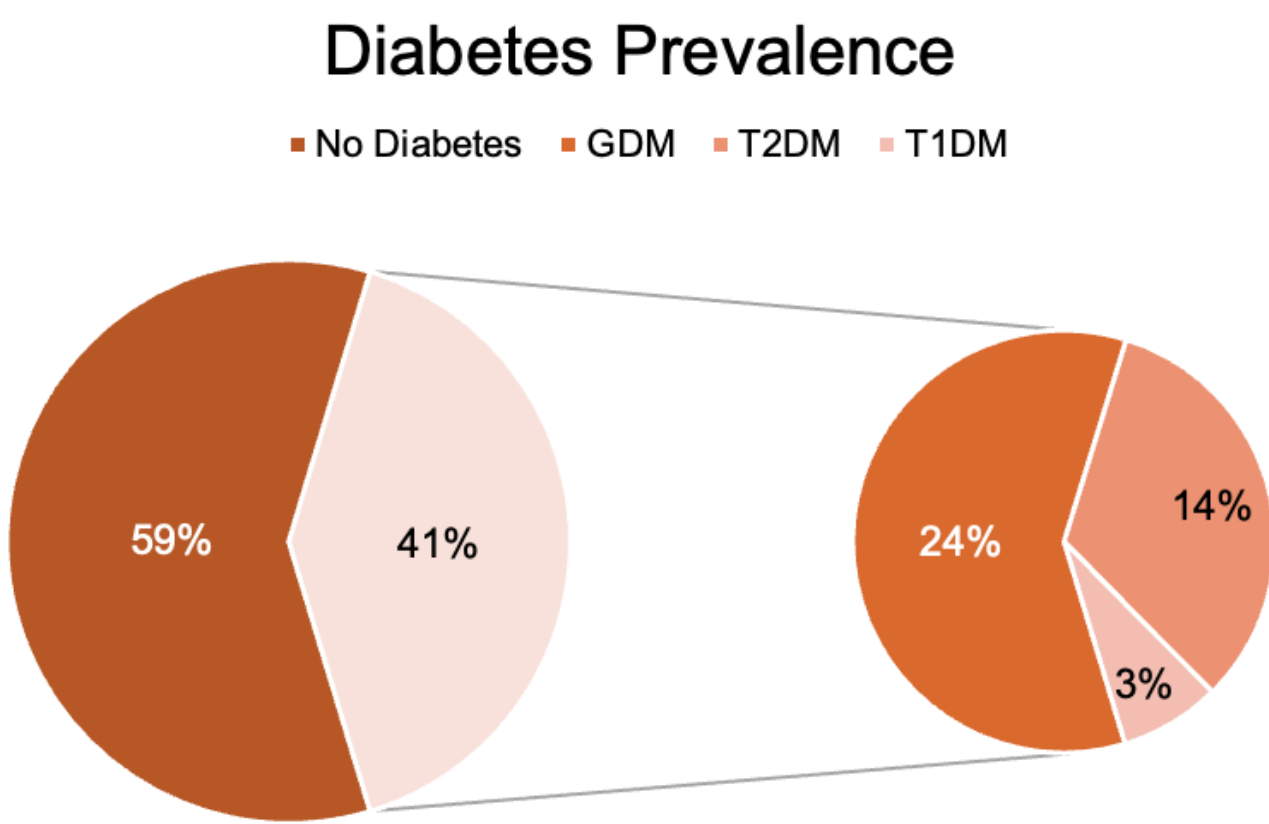


Table 1: Association between low PIGF ($< 5\%$) and FGR $< 10\%$

	Value	95% CI
Relative Risk	2.910	2.010 – 4.230
NNT	3.223	2.391 – 5.065
Odds Ratio	4.623	2.701 – 7.920
Sensitivity	0.6190	0.5122 – 0.7155
Specificity	0.7399	0.6786 – 0.7931
Positive Predictive Value	0.4727	0.3819 – 0.5654
Negative Predictive Value	0.8376	0.7797 – 0.8825

CONCLUSION

- Our data suggests that low PIGF levels are associated with FGR $< 10\%$ with a NPV of 83.7%.
- As a simple lab test, this could enable the identification of high-risk pregnancies earlier, as well as in rural and remote communities.

ACKNOWLEDGEMENTS



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