

# Does fetal gender influence maternal serum sFlt-1/PlGF ratio levels?

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## Introduction:

Placenta-derived maternal serum soluble fms-like tyrosine kinase 1 (sFlt-1) and placental growth factor (PlGF) are biomarkers of placental function. For example, sFlt-1/PlGF ratios > 38 in the latter half of pregnancy are predictive of preeclampsia<sup>1</sup>. Sexual dimorphism between male and female fetoplacental units exists for many parameters<sup>2</sup>. Its relevance to maternal serum sFlt-1/PlGF ratios is unclear, with conflicting reports in the literature.<sup>3,4</sup>

## Aim:

The aim of this study was to determine if fetal gender influences maternal serum sFlt-1/PlGF ratio levels in an Australian maternity hospital patient population.

## Methods:

This was a retrospective observational study of pregnant women delivering between 2016-2019 at The Royal Women's Hospital in Melbourne, Australia. Women (n=527) with clinical features or pregnancy history suggestive of preeclampsia (PE) had serum sFlt-1/PlGF ratio levels measured. Women were classified as non-PE or PE based on eventual outcome of their pregnancies. The ratio levels were each compared in respect to fetal gender in both non-PE and PE women from 20-41 weeks gestation.

## Results:

270/527 women had non-PE pregnancy and 257/527 had PE pregnancies (including HELLP syndrome and eclampsia) (see Figure 1). 264 women (50.1%) were carrying male and 263 women (49.9%) were carrying female fetuses. Analysis showed there was no significant difference between sFlt-1/PlGF levels in either non-PE or PE pregnancies. (Student's t-test; p > 0.05 for all comparisons). See Tables 1 and 2.

## Discussion:

Fetal gender does not influence the maternal serum sFlt-1/PlGF ratio level in preeclamptic or non-preeclamptic pregnancies in the studied Australian maternity hospital patient population and therefore does not need to be considered when interpreting the clinical significance of a maternal serum sFlt-1/PlGF ratio result in this context.

PE Group	sFlt-1/PlGF (p-value)
20 – 41 weeks	0.89

Table 1 – PE group results

Non-PE group	sFlt-1/PlGF (p-value)
20 – 41 weeks	0.09

Table 2 - Non-PE group results

## References:

- 1-Zeisler H et al (2016) N Engl J Med; 374:13-22.
- 2-Kalisch-Smith J I et al (2017) Placenta; 54:10-16.
- 3- Andersen L B et al (2016) J Repro Immunol; 117: 24-29;
- 4-Naseem H et al (2018) Pregnancy Hypertens; 13: S114.

527 patients at  
The Royal Women's Hospital  
between 2016-2019  
had sFlt-1/PlGF performed

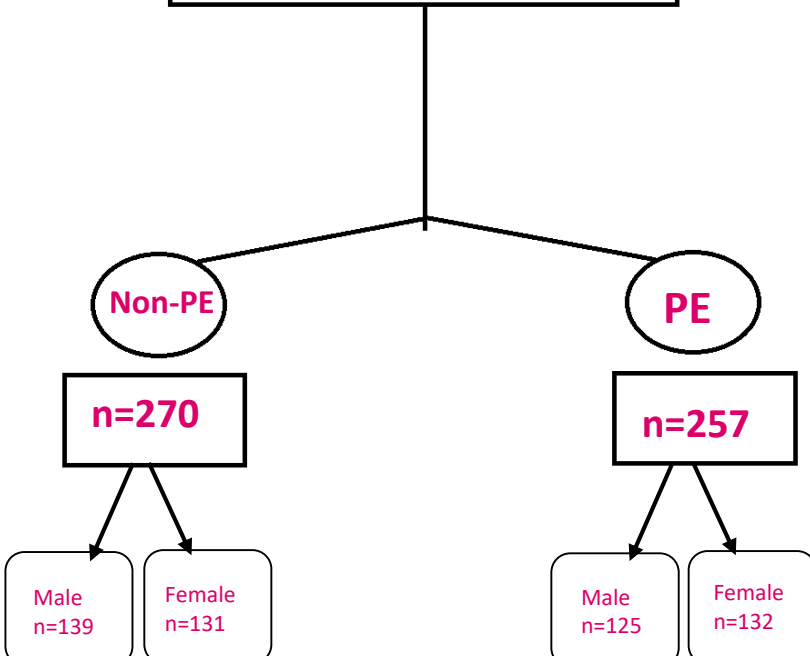


Figure 1