



# Placental Growth Factor and Diagnosis to Delivery Interval in Preterm Pre-Eclampsia

O.Allen<sup>1</sup>, I.Awowole<sup>2</sup>, T.Adedeji<sup>2</sup>, K.Ajenifuja<sup>2</sup>, S.Sinha<sup>1</sup>, E.Egbase<sup>1</sup>

<sup>1</sup>Barts Health NHS Trust, London, UK

<sup>2</sup>Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria

## INTRODUCTION

Pre-eclampsia complicates 2-8% of pregnancies and remains a significant contributor to maternal and perinatal morbidity and mortality, especially in Low- and Middle-Income Countries (LMIC).<sup>1,2</sup> Due to the complexity of the disease, no effective strategy has yet been identified for its screening and prevention. Placental Growth Factor (PIGF) is a key biomarker in the pathogenesis of pre-eclampsia and may predict adverse maternal and fetal severe outcomes.

## OBJECTIVES

This study evaluated the correlation between maternal serum PIGF concentration, the diagnosis to delivery interval, and neonatal outcomes among women with preterm pre-eclampsia in a tertiary hospital in South-West Nigeria.

## METHODS

This was a cross-sectional analytical study conducted between February 2022 and July 2023 at the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Osun state, Nigeria. Women diagnosed with preterm pre-eclampsia between the gestational ages of 20-36+6 weeks were recruited. Serum PIGF concentrations were measured at diagnosis, and participants were followed until delivery. Key outcomes assessed included diagnosis-to-delivery interval (DDI), neonatal birth weight, and Apgar scores.

## RESULTS

Eighty-seven women were recruited into this study, with gestational ages from 23 to 36 weeks. Seventy-three women (83.9%) had low PIGF levels ( $\leq 100\text{pg/ml}$ ), while 14 (16.1%) had normal PIGF levels ( $>100\text{pg/ml}$ ). The diagnosis to delivery interval ranged from one to 35 days. Seventy-seven women (88.5%) were delivered within 14 days, while 10 (11.5) were managed conservatively for more than 14 days before delivery.

PIGF showed a positive linear correlation with diagnosis to delivery interval. The median diagnosis to delivery interval was shorter in the low PIGF group compared to the normal PIGF group; median five days [interquartile range, 3-8] versus 10 days [6-23],  $p<0.001$ . Babies born in the low PIGF group had lower birth weights  $1935 \pm 266.2\text{g}$  versus  $2385 \pm 237.6\text{g}$ ,  $p=0.02$ . There was, however, no significant difference in Apgar scores at one or five minutes ( $p=0.65$ ,  $p=0.10$ ).

## CONCLUSION

Serum PIGF concentration positively correlates with diagnosis-to-delivery interval and birth weights in women with preterm pre-eclampsia. This test may be a useful adjunct in the management of these women in LMIC where resources are limited. Women predicted to be at risk of early delivery can be prioritised to receive interventions such as transfer to specialised units with the aim to improve pregnancy outcomes.

|                               | Maternal PIGF Levels          |                                      |         |
|-------------------------------|-------------------------------|--------------------------------------|---------|
|                               | Low<br>( $<100\text{pg/ml}$ ) | Normal<br>( $\geq 100\text{pg/ml}$ ) | P value |
| Age (years)                   | 31(24-38)                     | 33(29-39)                            | 0.169   |
| Parity                        | 1(0-2)                        | 2(1-3)                               | 0.292   |
| DDI (days)                    | 5(3-8)                        | 10(6-23)                             | $<.001$ |
| Gestation at Delivery (weeks) | 34(33-35)                     | 36(35-37)                            | 0.084   |
| Birth Weight (grams)          | $1935 \pm 266.2$              | $2385 \pm 237.6$                     | 0.020   |
| Apgar score at 1 minute       | 7(6-8)                        | 9(8-10)                              | 0.650   |
| Apgar score at 5 minutes      | 8(7-8)                        | 10(8-10)                             | 0.103   |

DDI – Decision-to Delivery Interval

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## REFERENCES

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## CONTACT INFORMATION

Dr Olubukola Allen  
Department of Obstetrics & Gynaecology,  
Royal London Hospital,  
Barts health NHS Trust  
[allenbukola@gmail.com](mailto:allenbukola@gmail.com)