

## Forms of Circulating Luteinizing Hormone Human Chorionic Gonadotropin Receptor for first trimester prediction of Early and Late Preeclampsia

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### Objective

To explore the value of circulating luteinizing human chorionic gonadotropin receptor (LHCGR) forms for the prediction of preeclampsia (PE) in the first trimester of pregnancy.

### Methods

Case-control study, based on a cohort of 5,759 pregnancies, including 20 early PE, 20 late PE, and 300 controls. We recorded/measured maternal characteristics, mean arterial pressure (MAP), uterine artery (UtA) Doppler, placental growth factor (PlGF), soluble Fms-like tyrosine kinase-1 (sFlt-1), and LHCGR forms (hCG-LHCGR and soluble LHCGR), and their independent predictive values were analyzed by logistic regression.

### Results

For early PE, the model included black ethnicity, chronic hypertension, previous PE, MAP, UtA Doppler, PlGF, sFlt-1, and LHCGR forms, achieving detection rates (DR) of 83% at 10% of false-positive rates (FPR) [AUC: 0.961 (95% CI: 0.921–1)]. For late PE, the model included body mass index, previous PE, UtA Doppler, PlGF, sFlt-1, and LHCGR forms, with DR of 75% at 10% of FPR [AUC: 0.923 (95% CI: 0.871–0.976)]. In both early and late PE, LHCGR forms improved DR by 6–15%.

### Conclusion

LHCGR forms improved the prediction for early and late PE. These results should be confirmed in larger prospective studies.