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.