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Predictive performance of uterine artery PI for pre-eclampsia before 37 weeks and before 32 weeks' gestation in Indian cohort. To compare the diagnostic utility of the 90th and 95th centile thresholds using a likelihood-ratio–based approach.

**Prashant Acharya, Foram Prashant Acharya**

**Objectives** To evaluate the predictive performance of uterine artery pulsatility index (UtA-PI) for pre-eclampsia (PET) before 37 weeks and before 32 weeks' gestation in a large Indian cohort, and to compare the diagnostic utility of the 90th and 95th centile thresholds using a likelihood-ratio–based approach.

**Method:** This retrospective diagnostic accuracy study included 9205 singleton pregnancies undergoing uterine artery Doppler assessment between 12 and 24 weeks' gestation. Mean UtA-PI was calculated from left and right uterine arteries and standardized to gestational-age–adjusted centiles using fitted polynomial equations. Pregnancy outcomes were classified as PET <37 weeks or PET <32 weeks according to standard diagnostic criteria. Diagnostic performance of UtA-PI thresholds  $\geq 90$ th and  $\geq 95$ th centiles was assessed using sensitivity, specificity, positive and negative predictive values, likelihood ratios and receiver-operating-characteristic (ROC) analysis.

**Results:** Pre-eclampsia occurred in 574 pregnancies (6.2%). UtA-PI  $\geq 90$ th centile demonstrated higher sensitivity for PET <37 weeks (81.4%) with high negative predictive value (98.7%), whereas the  $\geq 95$ th centile showed greater specificity (96.8%) and positive predictive value (57.2%). Similar trends were observed for PET <32 weeks. Likelihood ratios increased progressively with rising UtA-PI centiles, supporting continuous risk modelling. ROC analysis confirmed good discriminative performance for both early and preterm PET.

**Conclusion:** Uterine artery Doppler shows clinically useful predictive performance for pre-eclampsia before 37 and 32 weeks' gestation. The 90th centile threshold is suitable for screening and rule-out, while the 95th centile identifies women at particularly high risk. Integration of UtA-PI into gestational-age–adjusted, likelihood-ratio–based risk models may enhance individualized risk stratification in this population.

