

Preeclampsia screening method found superior to current tests

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New research highlights a more accurate way to screen for preeclampsia in pregnant women than currently recommended methods. Published early online in *Ultrasound in Obstetrics & Gynecology*, the study challenges the UK's current guidelines on the management of hypertensive disorders during pregnancy.

Preeclampsia (PE) affects approximately 2% to 3% of pregnancies and can have serious health effects for both the mother and child. The condition is characterized by [high blood pressure](#). Some affected women develop very severe disease associated with kidney, liver, bleeding and neurological problems. The fetus may experience impaired growth and possibly die. Risks are especially high when PE leads to preterm birth before 37 weeks' gestation (preterm-PE), which itself is associated with long-term health issues for the children.

Recent evidence suggests that giving low-dose aspirin to women at [high risk](#) of the disorder can reduce the prevalence of the severest form of preeclampsia by more than 60%, but the treatment must be started before 16 weeks' gestation. Therefore, early detection is key. In the UK, identification of high-risk women who could benefit from aspirin is based on a checklist of maternal characteristics and [medical history](#) as defined by the National Institute for Health and Care Excellence (NICE) guidelines. An alternative approach combines known risk factors with the results of various maternal biophysical and biochemical measurements taken at 11 to 13 weeks' gestation: mean arterial pressure (MAP), uterine artery pulsatility index (UtA-PI), and serum placental

growth factor (PIGF); known as the first-trimester combined test.

This latest *Ultrasound in Obstetrics & Gynecology* study—called the Screening Programme for pre-Eclampsia (SPREE) study—was designed to compare the performance of first-trimester screening for PE by this alternative approach with that of the current NICE method. The study was conducted in seven National Health Service (NHS) maternity hospitals in England between April and December 2016. Singleton pregnancies at 11 to 13 weeks' gestation had recordings of maternal characteristics and medical history, as well as measurements of MAP, UtA-PI, and PIGF.

PE occurring at any point during pregnancy (all-PE) was found in 473 (2.8%) of the 16,747 pregnancies in the study, and preterm-PE was seen in 142 (0.8%). The detection rates of the NICE checklist for all-PE and preterm PE were 30.4% and 40.8%, respectively. Furthermore, compliance with the NICE recommendation that women at high risk for PE should be treated with aspirin from the first trimester was only 23%. If screening was carried out by the first-trimester combined test, the detection rates for all-PE and preterm PE were increased to 42.5% and 82.4%, respectively.

The findings indicate that the use of the simple algorithm based on maternal characteristics and easily measurable markers can identify approximately 80% of women who would go on to develop preterm-PE and would therefore benefit from taking prophylactic aspirin. The first-trimester combined test is freely available as a simple and user-friendly risk calculator via <http://www.fetalmedicine.org> and on the Fetal Medicine Foundation app.

"The SPREE study has provided definitive proof to support risk-based screening for preterm-PE using various biomarkers. It is now time to revise the professional guidelines and to move away from using a

checklist-based method for screening." said co-senior author Liona Poon, MD, of King's College London, in London.

Basky Thilaganathan, MD, PhD, the journal's Editor-in-Chief, noted that the findings have important clinical implications. "Poon and colleagues have demonstrated that effective early pregnancy screening for preeclampsia is possible in a routine NHS hospital setting. They make a compelling case for the routine implementation of this protocol to halve the cases of early-onset severe preeclampsia cases in the UK" he said.

More information: Comparison of diagnostic accuracy of early screening for pre-eclampsia by NICE guidelines and a method combining maternal factors and biomarkers: results of SPREE, *Ultrasound in Obstetrics & Gynecology*, [DOI: 10.1002/uog.19039](https://doi.org/10.1002/uog.19039)

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