Mini-combined test compared with NICE guidelines for early risk-assessment for pre-eclampsia: the SPREE diagnostic accuracy study

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Plain English summary

The SPREE diagnostic accuracy study

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Plain English summary

Pre-eclampsia is a medical condition characterised by high blood pressure and the presence of protein in the urine of a pregnant woman. There could also be impaired function in organs such as the liver, kidneys and brain. It occurs in 2–3% of all pregnancies. The effects of pre-eclampsia can be serious for both the mother and the baby, especially when the disease is severe and requires delivery of the baby before 37 weeks' gestation (i.e. preterm pre-eclampsia).

There is evidence that in high-risk women their risk for preterm pre-eclampsia can be reduced substantially by taking low-dose aspirin (i.e. 150 mg) every day from the 12th to the 36th week of pregnancy. There is a need for accurate prediction of preterm pre-eclampsia in early pregnancy.

The National Institute for Health and Care Excellence has issued guidelines recommending that the way to determine whether or not a woman is at high risk for developing pre-eclampsia depends on her characteristics and medical history. Alternatively, we have developed a new method of screening that combines the information from maternal characteristics and medical history with the results from measurements of blood pressure, blood flow that supplies the uterus and levels of two placental proteins in the mother's blood to calculate the individual risk for developing preterm pre-eclampsia.

In this study of 16,747 women, 473 (2.8%) developed pre-eclampsia, including 142 (0.8%) women with preterm pre-eclampsia. The proportion of women considered as high risk by the National Institute for Health and Care Excellence method was ≈ 10%. The proportions of all pre-eclampsia and preterm pre-eclampsia cases with a high-risk result were 32% and 43%, respectively. We found that only 23% of high-risk women identified by the National Institute for Health and Care Excellence method actually received aspirin. The proportion of preterm pre-eclampsia cases with a high-risk result based on the combined test was 67%, which was much higher than that of the National Institute for Health and Care Excellence method (i.e. 44%). We conclude that our method of screening by a combination of maternal factors and various tests is superior to that achieved by current National Institute for Health and Care Excellence guidelines.

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