HYPERTENSION

A test to predict early pre-eclampsia

Leona Poon and colleagues at King's College Hospital in London have developed an algorithm that allows first-trimester prediction of early pre-eclampsia—pre-eclampsia that requires delivery before 34 weeks of gestation—with over 90% accuracy.

Pre-eclampsia is a common and dangerous complication of pregnancy, and although it is currently treatable only by delivery of the placenta, identification of women at high risk of the condition might facilitate close surveillance and thereby decrease morbidity and mortality of both mother and fetus. Tests for predicting pre-eclampsia are currently of limited usefulness: the traditional approach based on maternal history enables the advance identification of only around 30% of cases. Analysis of published data has led some researchers to suggest that the future of pre-eclampsia screening lies in a combination of several, ideally simple, rapid, inexpensive tests that can be performed early during pregnancy.

Using maternal history and laboratory data (collected at 11 to 13 weeks of gestation) from 7,797

singleton pregnancies, Poon *et al.* devised algorithms to predict early pre-eclampsia, late pre-eclampsia and gestational hypertension. Their cohort included 157 women who developed pre-eclampsia—34 of them in its early form—and 136 who developed gestational hypertension. The algorithm for early pre-eclampsia performed particularly well, generating the correct prediction in 32 of 34 women who developed the condition (94.1% sensitivity) and in 7,319 of 7,763 women who did not develop the condition (94.3% specificity). This algorithm is calculated from the log values of maternal mean arterial pressure, uterine artery pulsatility, serum free placental growth factor level and serum pregnancy-associated plasma protein-A level; it also takes into account BMI, nulliparity and previous pre-eclampsia.

“These are remarkably good results!” observe Richard Levine and Marshall Lindheimer in an accompanying commentary. Both these commentators and the study team acknowledge, however, that the results require prospective confirmation in other populations.

Levine and Lindheimer also note that complications associated with pre-eclampsia are much more serious and common in developing countries than in developed regions, and that both the laboratory facilities and equipment and the financial resources required by Poon *et al.*'s approach are often unavailable in the developing world. “Alternative approaches to accurate prediction [are] required in such countries,” they conclude.

Baldo Lucchese

Original article Poon, L. C. Y. *et al.* First-trimester prediction of hypertensive disorders in pregnancy. *Hypertension* **53**, 812–818 (2009).