Preeclampsia: Universal Screening or Universal Prevention for Low and Middle-Income Settings?

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Dear Editor,

We read with interest the Clinical Consensus Recommendation about screening and prevention of preeclampsia published by De Oliveira et al.[1] The authors recommend that identification of high-risk women should be based on maternal risk factors alone, and that universal treatment (of all pregnant women) with aspirin at a dose of 100 mg should be considered in low- and middle-income countries. In this letter, we express our concerns and disagreement with these strategies.

The association of certain maternal risk factors with an increased risk of preeclampsia development is well known, and several risk scoring systems have been recommended by Obstetric societies around the world, such as the National Institute for Health and Care Excellence (NICE) criteria in the United Kingdom, and the American College of Obstetrician and Gynecologists (ACOG) in the United States. Such scoring systems are based on experts' opinions and low levels of evidence, attribute similar weights to very different risk factors, and perform poorly in the clinical practice.[2] Recent large studies[2] have shown that such methods fail to identify as high-risk 60% to 70% of women who will later develop preeclampsia. Furthermore, physician compliance with these recommendations is low, with only 20% to 30% of high-risk women receiving aspirin prophylaxis.[2,3] On the other hand, combined screening with individual risk calculation by incorporating risk factors, mean arterial blood pressure, uterine artery Doppler studies, and placental growth factor (PlGF) far outperforms risk scoring, identifying as high-risk about three quarters of women who will develop preterm preeclampsia, and 90% of those destined to develop early-onset disease.[4,5] In addition, combined screening is more cost-effective,[6] and is associated with nearly total physician compliance.[3] Although resistance to new

technologies is common in Medicine, and translation of research into clinical practice usually takes a long time,[7] most components of combined screening, such as the measurement of arterial blood pressure and ultrasound are readily available and widely in use in most settings (even in low/middle-income countries). Simplified versions of the algorithm (for example, without biochemical markers) outperformed clinical history even in middle-income countries such as Brazil,[8,9] and could be rapidly implemented with minimal or no increase in cost, and lead to a significant increase in the detection of high-risk women who would benefit from aspirin prophylaxis and likely be missed by risk scoring screening.

As appealing as the suggestion to give aspirin to all pregnant women given its relative safety and low cost may be, a strategy of universal aspirin use has not been properly assessed in adequately-powered prospective studies.[10] Pregnant women are naturally resistant to medication use in the absence of convincing medical indication, and such an approach would likely be associated with low adherence to treatment.[10] The strong effect of aspirin in the prevention of preeclampsia in high-risk populations[11] may not be observed when the treatment is recommended to the entire obstetric population, and side effects will inevitably become more frequent if millions of women are treated. Indeed, data from a previous study on universal aspirin prophylaxis demonstrated no clear treatment benefit,[12,13] increased risk of postpartum hemorrhage,[14] and other hemorrhagic events,[12] as well as low adherence to treatment.[12] We argue that early combined prediction with the full or simplified versions of the algorithm for individual risk calculation is feasible in low- and middle-income countries, and should be the preferred method of screening whenever possible, in line with recent recommendations from the International Federation of Gynecology and Obstetrics (FIGO),[15] the International Society for the Study of Hypertension in Pregnancy (ISSHP),[16] and the International Society of Ultrasound in Obstetrics and Gynecology.[17]

Conflict of Interests
The authors have no conflict of interests to declare.

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