Updates on the Recognition, Prevention and Management of Hypertension in Pregnancy

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KEYWORDS

• Pregnancy • Hypertension • Criteria • Proteinuria • Aspirin • Treatment

KEY POINTS

- Proteinuria is sufficient but not necessary when defining preeclampsia, and the methods used to measure urinary protein levels have changed. Hypertension without proteinuria but with severe features is diagnostic.
- Low-dose aspirin is effective for the prevention of preeclampsia. The number needed to treat is 42 to 18 as risk changes from low to high.
- The recommended dose of low-dose acetylsalicylic acid for prevention of preeclampsia in the United States is 81 mg daily started at 12 to 28 weeks' gestation.
- Data suggest that treating mild to moderate blood pressure has maternal benefits; however, fetal/neonatal risk is uncertain.

INTRODUCTION

Practicing obstetrics care providers recognize that the management of patients with hypertension in pregnancy offers a myriad of rewards, challenges, and uncertainties. When addressing the uncertainties, clinicians resort to evidence-based guidance for answers. Types of evidence assume an established hierarchy with systematic reviews at the top[1] (**Fig. 1**). Systematic reviews often use meta-analysis to combine results from level II studies that report similar outcomes. Meta-analysis provides more certain point estimates and narrower confidence intervals. Clinically useful statistical point estimates derived from meta-analyses include number needed to treat (NNT). The

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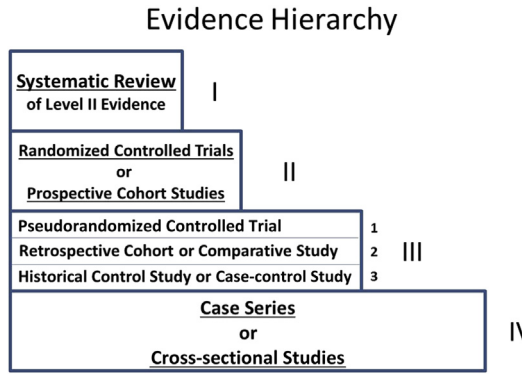

Fig. 1. Levels of evidence determine the weight given to studies that affect evidence-based clinical practice. Level I evidence is the highest level and takes advantage of randomized controlled trials and prospective cohort studies (level II evidence).

American College of Obstetricians and Gynecologists (ACOG) publication *Hypertension in Pregnancy* challenged previous criteria used to define preeclampsia, offered guidance on the use of low-dose acetylsalicylic acid (ASA) in pregnancy for the prevention of preeclampsia, and commented on the management of mild to moderate hypertension.[2] This article discusses these topics using the lens of already published meta-analyses.

DEFINING PREECLAMPSIA

In 1972, the ACOG established the classification scheme of hypertension-associated conditions in pregnancy (eg, gestational hypertension, preeclampsia, chronic hypertension, and chronic hypertension with superimposed preeclampsia).[2–4] Over the last 26 years, the defining features of preeclampsia were modified several times (**Table 1**). Recent modifications[2] emphasize proteinuria (300 mg/24 h) is sufficient but not necessary to make the diagnosis of preeclampsia. Furthermore, proteinuria can be established using a 24-hour urine collection or a urine protein/creatinine (P/C) ratio. Only when these methods are not available is a qualitative urine dipstick assay acceptable. The addition of the P/C ratio is sound, but the proposed threshold of 0.3 is open to critique. A systematic review, which included 7 studies and performed a receiver operator curve analysis, was used to derive clinically useful values for the P/C ratio[5] (**Table 2**). The investigators suggested that a value of less than 150 is useful as a screening tool to determine who should be tested using a 24-hour urine measurement, whereas a value greater than or equal to 600 could obviate the 24-hour specimen. Importantly, neither the 24-hour urine or P/C ratio are practical tests for immediate decision making and office practice. In these settings, a urine dipstick is appropriate.

The National Heart Lung and Blood Institute provided guidelines for the diagnosis of hypertension-associated conditions[6] and 10 years later revised the criteria.[7] Revisions included removal of edema as a criterion and specific blood pressure criteria were changed. Previously,[6] patients could be their own controls such that blood pressure comparisons before and after 20 weeks' gestation were used to establish patient-specific thresholds for disease (ie, 30 mm Hg increase in systolic or 15 mm Hg increase in diastolic after 20 weeks). The revision provided a single threshold value for all patients (140 mm Hg systolic or 90 mm Hg diastolic). It was determined that