Review: evidence is sparse and inconclusive for treating and monitoring chronic mild to moderate hypertension in pregnancy


QUESTIONS: In pregnant women with mild to moderate chronic hypertension, what is the magnitude of maternal and fetal risks, how effective and safe are treatments before and during pregnancy, and what monitoring strategies are effective for detecting fetal complications associated with the hypertension?

Data sources
Studies were identified by searching 16 electronic databases from their inception to February 1999; scanning bibliographies of textbooks, studies, and reviews; and contacting experts.

Study selection
Study inclusion criteria varied according to the question (eg, randomised controlled trials [RCTs] for treatment and prevention questions and case control and cohort studies for causation and monitoring questions). All included studies evaluated pregnant women with chronic hypertension.

Data extraction
Data were extracted on study design and quality, patient populations, selection and outcome criteria, interventions and comparisons, and outcomes. Analysis used random effects models.

Main results
Few clinical data are available to show the benefits of treating chronic hypertension in non-pregnant young women, although a meta-analysis of 3 RCTs of women aged 30–54 years showed that approximately 259 women (95% CI 158 to 1606) would need to be treated for 5 years to prevent 1 additional cardiovascular event. Data are insufficient to prove or disprove the benefits of treating chronic hypertension in pregnant women. Although data are sparse, several antihypertensive agents have been associated with adverse events in pregnant women. Angiotensin converting enzyme (ACE) inhibitors, if used in the second or third trimester, have been shown to be associated with renal dysfunction in the fetus. Conflicting trial evidence exists on the connection between atenolol and fetal growth retardation. Some anecdotal evidence on nifedipine supports the finding that it causes neuromuscular blockage if it is used in conjunction with magnesium. Diuretics, methyl-dopa, and hydralazine are safe for mothers and infants. No RCTs have been done on non-pharmacological interventions for mild to moderate hypertension. Although chronic hypertension is associated with a 3-fold increased risk for perinatal mortality and an increased risk for abortion, pre-eclampsia, and smaller babies, optimal target levels for starting treatment have not been ascertained. Monitoring techniques (biophysical profiles, Doppler velocimetry, non-stress tests, contraction stress tests, fundal measurements, amniotic fluid index, ultrasonographic fetal biometry, or fetal movement counting) have not been shown to identify fetal complications.

Conclusion
Evidence is sparse and inconclusive on the effects of treating mild to moderate chronic hypertension before or during pregnancy, the adverse effects of antihypertensive agents, and the usefulness of monitoring techniques to identify fetal complications.