Impact of delivery timing on outcomes of pregnancies complicated by stage 1 chronic hypertension

Frank Jackson DO PGY2, Tiffany Rose MS4, Reinaldo Figueroa MD, Ichchha Madan MD
OBGYN St Francis Hospital and Medical Center

Introduction
Since 2017 the AHA/ACA adopted a new threshold for diagnosis of hypertension in the general population due to evidence of long term health risks for people with mildly elevated blood pressures and benefits to management of these blood pressures.¹

Applying this threshold to pregnant women in the diagnosis of chronic hypertension has demonstrated this group has increased morbidity relative to women who are normotensive. Secondary analysis have demonstrated benefits to use of aspirin in reducing the risk of pre-eclampsia in this group. Stage 1 hypertension in pregnancy has also been linked to increased likelihood of developing small for gestational age (SGA) and placental abruption.²³

Timing of delivery for pregnancies complicated by stage 1 chronic hypertension remains unclear. Our objective was to determine the potential impact of applying the current ACOG chronic hypertension induction guidelines (38w0d-39w6d) to pregnancies complicated by stage 1 chronic hypertension.

<table>
<thead>
<tr>
<th>Essential Hypertension (AHA/ACA pre 2007)</th>
<th>ACOG cHTN</th>
<th>Stage I Hypertension (AHA/ACA since 2007)</th>
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</thead>
<tbody>
<tr>
<td>&gt;140 mmHg SBP or &gt;90 mmHg DBP</td>
<td>&gt;140 mmHg SBP or &gt;90 mmHg DBP before 20 weeks GA</td>
<td>130-139 mmHg SBP or 80-89 mmHg DBP</td>
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Methods
A secondary analysis was performed of the Maternal-Fetal Medicine Units Network (MFMUN) Low-risk (LRA) and High risk aspirin (HRA) studies. We determined the incidence of pre-eclampsia, SGA, and antepartum hospitalization in women who delivered between 38w0d-39w6d in comparison to those who delivered at ≥40w0d using linear mixed modeling controlling for age, race, ethnicity, assignment to aspirin use, and high vs. low risk patients. This research was approved by the Trinity Health of New England IRB and the NICHD DASH Access Committee.

Results
In the MFMUN LRA study 167 women met stage I hypertension criteria, while in the MFMUN HRA study 715 women met stage I hypertension criteria. In the LRA study, 38w0d-39w6d represented 139/167 (83%) of stage I hypertension pregnancies in the LRA cohort, and 297/715 (42%) of the pregnancies in the HRA cohort.

<table>
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<tr>
<th>Delivery at 38w0d-39w6d</th>
<th>Delivery at ≥40w0d</th>
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<tbody>
<tr>
<td>LRA participants w stage I cHTN</td>
<td>73 (39%)</td>
</tr>
<tr>
<td>HRA Participants w stage I cHTN</td>
<td>203 (28%)</td>
</tr>
</tbody>
</table>

Hypothesis
• In comparison to patients delivered at ≥40w0d, patients delivered between 38w0d-39w6d will have a lower incidence of maternal morbidity associated with chronic hypertension including lower incidence of pre-eclampsia, need for hospitalization, or antepartum admission.

• In comparison to patients delivered at ≥40w0d, patients delivered between 38w0d-39w6d will have a lower incidence of fetal morbidity associated with chronic hypertension including lower incidence of NICU admission and small for gestational age.

References


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