Timing of Delivery and Associated Outcomes in Pregnancies Complicated by Maternal Congenital Heart Disease

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Background
- Pregnancies complicated by maternal congenital heart disease (CHD) have an increased frequency of adverse maternal, obstetric, and neonatal events
- There is limited data available assessing appropriate timing of delivery for pregnant patients with CHD

Objective
To evaluate timing of delivery for pregnancies complicated by maternal CHD and determine if early delivery is beneficial

Study Design
- Retrospective cohort study of singleton gestations with maternal CHD that delivered after 37 weeks between March 2013 and August 2020
- Categorized by gestational age (GA) at delivery: 37 weeks, 38 weeks, >39 weeks
- Primary outcomes:
  1. Composite adverse cardiovascular (CV) outcome
  2. Composite adverse maternal outcome
  3. Composite adverse neonatal outcome
  - Outcomes compared by GA at delivery with Chi squared (or Fisher’s exact) and Kruskal-Wallis tests
  - Multivariable logistic regression performed to calculate adjusted odds ratio for GA at delivery

Results
- 82 pregnancies with maternal CHD delivered after 37 weeks with known neonatal outcomes
- 23 (28.0%) adverse CV outcome
- 13 (15.8%) adverse maternal outcome
- 11 (13.4%) adverse neonatal outcome
- Adverse CV outcome (p=0.13) and maternal outcome (p=0.24) were not significantly different by GA at delivery
- Early-term deliveries had increased rate:
  - Adverse neonatal outcomes (p=0.01)
  - NICU admissions (p=0.002)
  - Small for GA infants (p=0.03)
- Multivariable logistic regression
  - Adverse CV and maternal outcomes not associated with GA at delivery (p=0.05)
  - Increased odds of adverse neonatal outcomes with earlier GA at delivery (p=0.01)

Conclusion
- Early-term deliveries for pregnancies with maternal CHD associated with increased adverse neonatal outcomes without a decrease in adverse maternal or cardiovascular outcomes
- If no maternal or fetal indication, consider avoiding induction of labor prior to 39 weeks for pregnancies complicated by maternal CHD

Table 5: Maternal, cardiovascular, and neonatal outcomes by gestational age at delivery

<table>
<thead>
<tr>
<th>GA at delivery (in weeks)</th>
<th>Composite adverse cardiovascular outcome</th>
<th>Composite adverse maternal outcome</th>
<th>Composite adverse neonatal outcome</th>
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Table 2: Multivariable logistic regression of gestational age at delivery for composite adverse outcomes

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Questions?
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Figure: Rate of adverse cardiovascular and pregnancy outcomes by gestational age at delivery in 15%

Table 1: Categorized by gestational age at delivery

- Composite adverse cardiovascular outcome
- Composite adverse maternal outcome
- Composite adverse neonatal outcome
- Multivariable logistic regression
- GA at delivery (in weeks)
- Composite adverse cardiovascular outcome
- Composite adverse maternal outcome
- Composite adverse neonatal outcome
- OR (95% CI)
- p-value

Figure: Rate of adverse cardiovascular and pregnancy outcomes by gestational age at delivery in 15%

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Table 3: Multivariable logistic regression of gestational age at delivery for composite adverse outcomes

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