ASSESSING CARDIAC TROPONIN LEVELS IN PREGNANCY COMPLICATED BY HYPERTENSION

BACKGROUND

- Hypertensive disorders of pregnancy include a spectrum of conditions which can affect pregnancy in the antepartum, intrapartum, and postpartum periods. These are classified as chronic or pre-existing hypertension, gestational hypertension, and preeclampsia/eclampsia, as defined by the American College of Obstetrician and Gynecologists (ACOG). 1
- Studies have shown that women with a history of preeclampsia in pregnancy have a higher lifetime risk of developing cardiovascular disease. 2
- Finding a marker that identifies the cardiovascular impact of preeclampsia during pregnancy remains a challenge.
- Cardiac Troponin testing has been used to assess various disease processes for myocardial injury. 3
- Currently, limited evidence supports cardiac Troponin testing during pregnancy for the diagnosis of hypertensive conditions and predicting long-term cardiovascular sequelae.

PURPOSE

This study aims to look at cardiac troponin levels obtained during the peripartum state as related to pregnancy complicated by hypertension. It is the initial step in evaluating the utility of cardiac troponin levels in the workup of pregnancy related hypertensive disorders.

METHODS

- Retrospective observational study that reviewed all pregnant patients ≥18 years of age who had a delivery between 1/1/2019-10/01/2021, and who had an Ultra-Sensitive Troponin I test in the peripartum state (within 180 days prior to or 60 days after delivery).
- Ultra-Sensitive Troponin I level was used with a normal cut off value of ≤0.04 ng/mL.
- Patients were categorized into normotensive and hypertensive categories on a spectrum as defined by ACOG at the time of their first Troponin I test.
- Descriptive statistics were used to describe patient characteristics; Chi-square test was used to test associations.

RESULTS

- Overall, 597 patients had a Troponin I test in the peripartum period.

![Figure 1: Overall patient characteristics.](image)

- A total of 18 patients (3.02%) had an elevated first Troponin I level (Table 1).
- Patients with a hypertensive disorder of pregnancy had a statistically significant higher rate of an elevated first Troponin I level (Figure 2).

CONCLUSIONS

Cardiac Troponin I elevation is seen within the spectrum of hypertension in pregnancy; specifically, these results show that those patients with a hypertensive disorder of pregnancy had statistically significant elevated Troponin I levels compared to normotensive patients. Correlation between Troponin elevation and hypertensive disease severity could not be deduced.

Therefore, further studies are needed to determine if troponin testing can be used as a screening tool for this disease spectrum, furthermore, to determine if elevated Troponin levels in pregnancy are a predictor of long-term cardiovascular impact.

Table 1: Descriptive table showing the distribution of cardiac Troponin I elevation by hypertensive category.

<table>
<thead>
<tr>
<th>Hypertension category</th>
<th>Overall (N=597)</th>
<th>Elevated Troponin I (N=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normotensive, N (%)</td>
<td>390 (65.3)</td>
<td>5 (27.8)</td>
</tr>
<tr>
<td>Gestational Hypertensive, N (%)</td>
<td>30 (5.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Preeclampsia without Severe Features, N (%)</td>
<td>25 (4.2)</td>
<td>2 (11.1)</td>
</tr>
<tr>
<td>Preeclampsia without Severe Features and Chronic Hypertension, N (%)</td>
<td>3 (0.5)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Preeclampsia with Severe Features, N (%)</td>
<td>91 (15.2)</td>
<td>8 (44.4)</td>
</tr>
<tr>
<td>Preeclampsia with Severe Features and Chronic Hypertension, N (%)</td>
<td>32 (5.4)</td>
<td>2 (11.1)</td>
</tr>
<tr>
<td>Chronic Hypertension, N (%)</td>
<td>26 (4.4)</td>
<td>1 (5.6)</td>
</tr>
</tbody>
</table>

![Figure 2: Comparison of cardiac Troponin I elevation distributed by whether the patient was hypertensive or normotensive.](image)

REFERENCES