Cardiac Structure and Function 6 months after Normal or Hypertensive Pregnancy: The P4 Study

Gemma Bylos, Amanda Henry, Daniel Chen, Lynne Roberts, George Youssef, George Mangos

St George Hospital, Kogarah, NSW: Department of Women and Children’s Health, Department of Cardiology
UNSW Medicine, University of New South Wales
Faculty of Health, University of Technology, Sydney
The P4 Study at St George Hospital: Postpartum Women

**Physiology**
- Blood Pressure
- **Cardiac function**
- Metabolic studies
- Risk factors

**Psychology**
- Depression
- Anxiety
- PTSD

**Paediatric**
- Physical development
- Behavioural development

Follow up study at 6 months post partum
Normotensive v Hypertensive pregnancy
Repeated follow up at 2 and 5 years
Background

• Women have a 2-3 fold increased risk of cardiovascular disease after HDP
• **Aim:** Assess any differences in cardiac structure and function at 6 months postpartum between women who had HDP and women who did not

% Mothers still alive 0 -25 years after birth (with and without PE)
Methods

- Women were recruited and assessed at 6 months postpartum
- Subgroup of women then underwent echo at separate appointment to 6 month assessment
- Sonographers were blinded to pregnancy outcome and all scans were interpreted and reported on by a single blinded cardiologist

Standardised Form for Recording 6 Month P4 Echo Data
Results – Cardiac Structure

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Hypertensive (N=39)</th>
<th>Normotensive (N=40)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LV Mass (g)</td>
<td>109</td>
<td>94</td>
<td>0.018*</td>
</tr>
<tr>
<td>RWT (cm)</td>
<td>0.37</td>
<td>0.35</td>
<td>0.016*</td>
</tr>
<tr>
<td>IVS (cm)</td>
<td>0.88</td>
<td>0.81</td>
<td>0.007**</td>
</tr>
<tr>
<td>PWT (cm)</td>
<td>0.86</td>
<td>0.77</td>
<td>&lt;0.001**</td>
</tr>
</tbody>
</table>

- HDP group shows evidence of early concentric type cardiac remodelling
Results - Function

- 13% difference in E/A ratio (1.43 vs. 1.62)
- 17% difference in septal E/e’ ratio (8.8 vs. 7.5)
- 15% difference in lateral E/e’ ratio (6.2 vs. 5.4)

→ Significant but subtle differences in diastolic function
Conclusions

At 6 months postpartum
Hypertensive women:

1) Had evidence of early left ventricular thickening

2) Showed impaired diastolic function

→ Increased cardiovascular risk for women after a pregnancy complicated by GH or PE
→ Closer CV monitoring postpartum
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**P4 Co-investigators:** Mark Brown, Greg Davis, Anthony O’Sullivan, Franziska Petitt

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**Affiliated Institutions**

St George Hospital, Kogarah, NSW: Department of Women and Children’s Health, Department of Endocrinology and Medicine, Department of Cardiology

UNSW Medicine, University of New South Wales, Sydney, NSW