

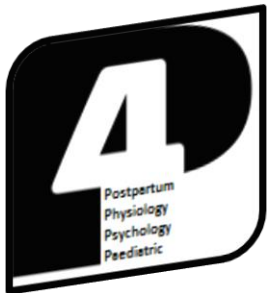


Cardiac Structure and Function 6 months after Normal or Hypertensive Pregnancy: The P4 Study

Never Stand Still

Medicine

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The P4 Study at St George Hospital: Postpartum Women



Physiology

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



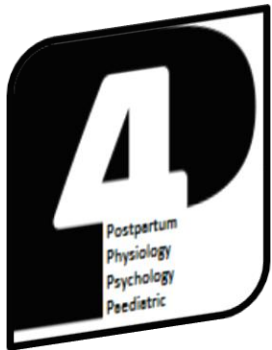
Psychology

- Depression
- Anxiety
- PTSD



Paediatric

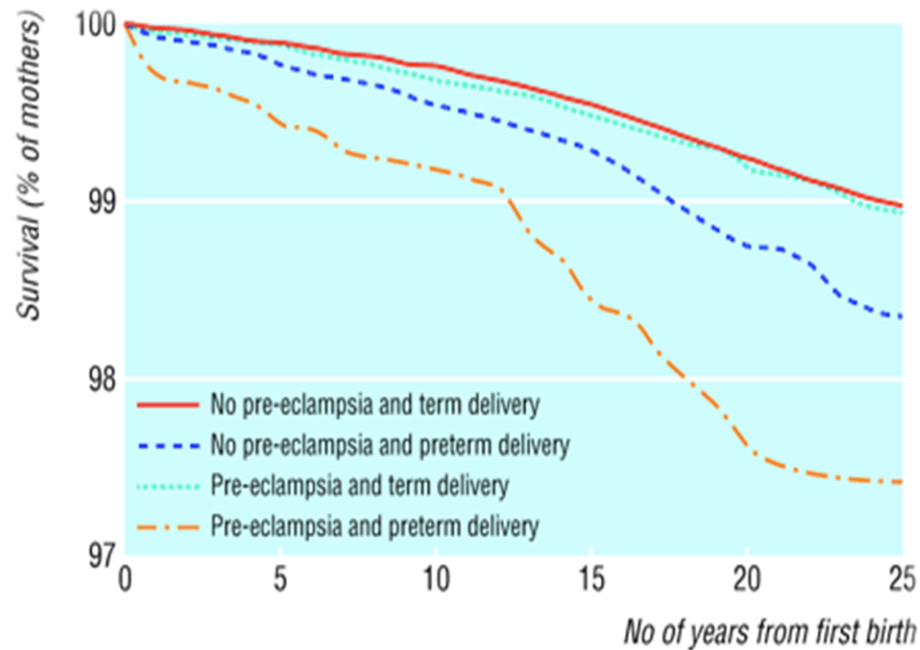
- Physical development
- Behavioural development



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

Background

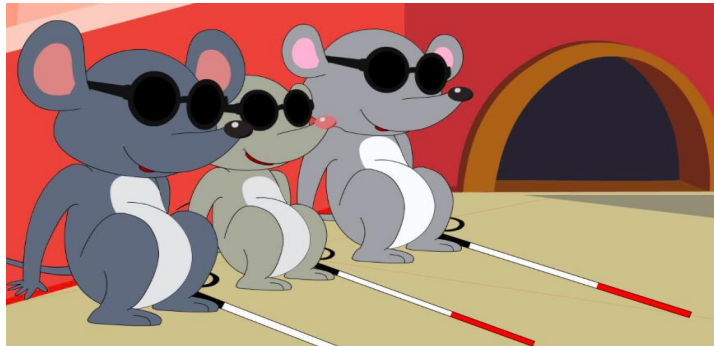
- Women have a 2-3 fold increased risk of cardiovascular disease after HDP
- **Aim:** Assess any differences in cardiac structure and function at 6 months postpartum between women who had HDP and women who did not



% 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



P4 study ECHO data – 6 months post partum

Name: _____ MRN: _____

Height (cm): _____ Weight(kg): _____ BSA (m2): _____

Measurements

LVIDD (mm): _____ IVS (mm): _____ PW(mm): _____
LV100 (2D): _____ IVS (2D): _____ PW(2D): _____
Relative wall thickness (IVS + PW / LVIDD): _____

LV mass (area / length method): _____

LV mass indexed g/m2: _____

LA volume (area / length method 4C / 2C view)cm3: _____

LA volume indexed cm3/m2: _____

Mitral E velocity m/s: _____ Mitral A velocity m/s: _____ E/A ratio: _____

Mitral E dec time ms: _____

E' septal m/s (TDI): _____ E' lateral (TDI)m/s: _____ E/E' ratio septal: _____ Lateral: _____

RV free wall annulus S' m/s: _____

TAPSE: _____

EF (Simpsons bi-plane) _____

GLS: _____

All studies should preferably be performed on the Philips iE33 and study labelled as P4 study.

A basic 2D, colour and tissue Doppler study should be performed on all patients. Measure LV size / thickness with m-mode and 2D. Images looking at LV function should be acquired with 2 cardiac cycles. Tissue Doppler should be performed on the septal and lateral mitral annulus as well as RV free wall

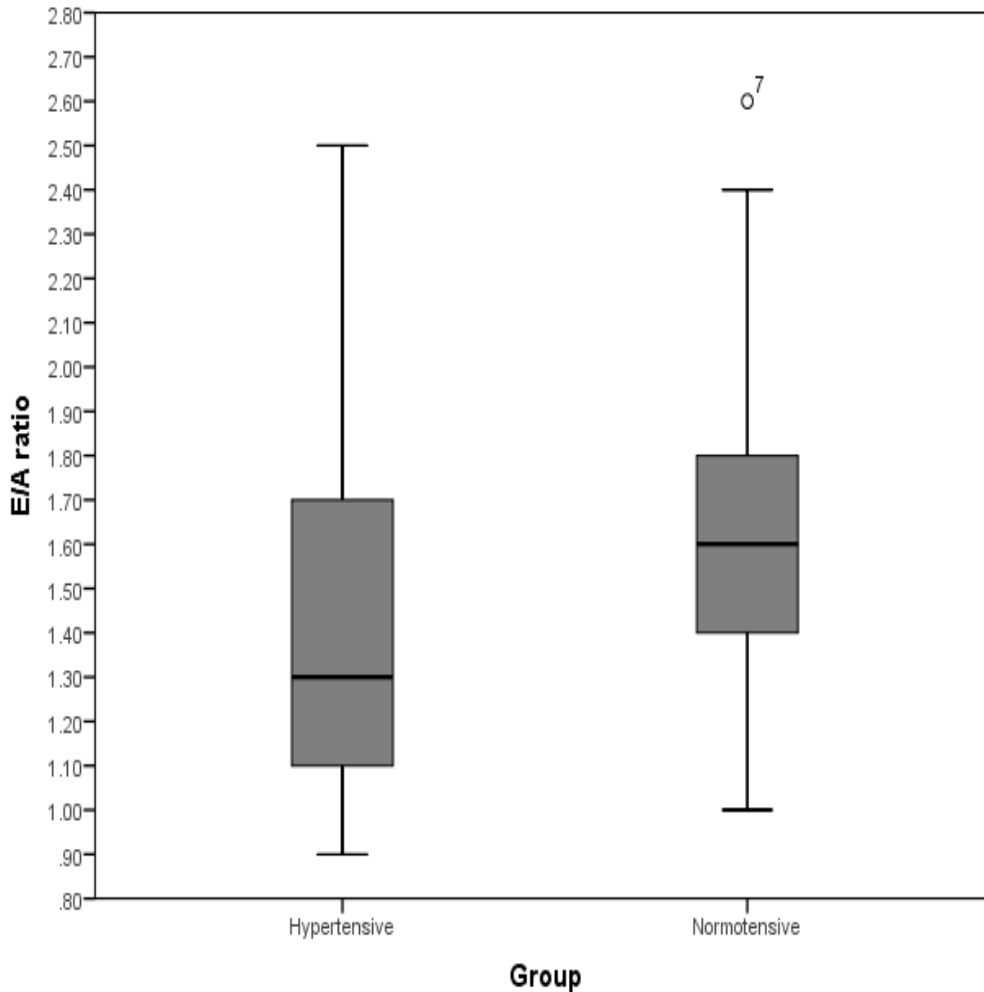
Standardised Form for Recording 6 Month P4 Echo Data

Results – Cardiac Structure

Parameter	Hypertensive (N=39)	Normotensive (N=40)	P value
LV Mass (g)	109	94	0.018*
RWT (cm)	0.37	0.35	0.016*
IVS (cm)	0.88	0.81	0.007**
PWT (cm)	0.86	0.77	<0.001**

- 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

The women who gave their time to participate in P4

Affiliated Institutions

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