Diagnostic Needs: Pre-eclampsia Diagnosis and Management

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Pregnancy Management

- >800,000 pregnancies per year in UK

- Natural process
  - Involves management of 2 people
  - Maternal & Fetal Health & Wellbeing

- Majority of the time progresses normally and safely
Complications do Occur

- Women still die during pregnancy or suffer life-threatening complications

  - 261 women died
  - Top 3 Direct causes:
    - Sepsis
    - **Pre-eclampsia & eclampsia**
    - Thrombo-embolism

Pre-eclampsia is a leading cause of maternal death, preterm labour, neonatal complications & stillbirth
What is Pre-eclampsia?

- **Multi-systemic disorder**
  - Can occur anytime from 20 weeks to term

- **Abnormal vascular response to placentation** – placental implantation is too shallow
  - Vascular resistance
  - Hypoxic placenta
  - Endothelial cell dysfunction

- **Clinical symptoms**
  - **Maternal Syndrome**, hypertension (140/90), proteinuria (>300mg/24h), epigastic pain, migraine, visual disturbance
  - **Fetal Syndrome**, FGR, reduced amniotic fluid, abnormal oxygenation

There is no treatment, only delivery of the placenta.
Diagnosis is often Uncertain

- Pregnancies need to be screened and monitored regularly to identify women at risk
  - **High Blood pressure and protein in urine** is the gold standard for diagnosis
  - But PE is a complex syndrome.....
  - Can be fast moving
  - Presents with many different symptoms

Only 38% of women had both hypertension and proteinuria before the development of eclampsia.

*Douglas & Redman (1994) BMJ
Knight (2007) BJOG*
Is it Pre-eclampsia?

These are late symptoms of the disease – women can present with any/just one etc. May be masked by another condition.

What are the Clinical Needs?

Research conducted with Consultants & Midwives/Nurse Practitioners in >10 countries, there are a common set of needs:

1. **Greater Accuracy in Diagnosis & Prognosis** - ‘suspiccion of PE’ is the most common reason for iatrogenic preterm delivery and labour induction.

2. **Getting Patients on the Correct Clinical Pathway quickly** – rule-in/ rule out

3. **Saving costs** - Expense of antenatal monitoring (clinic visits, fetal ultrasound) and inpatient admissions.

4. **Results at the Point of Care** – to enable midwives to quickly manage patients.

5. **Improving the patient experience** – do they really need to be admitted/ what did I do wrong? Preterm PE has huge impact on the patient and family.
New Biomarker – PLGF
Delivering against the Clinical Need

The Triage® MeterPro™ Platform
Placental Growth Factor (PLGF)
- Important new test for Placental Dysfunction

• Greater accuracy in diagnosis and prognosis – high NPV (96%) and PPV (94%) for delivery in 14 days

• Clinical algorithm allowing Risk Stratification of patients with suspected PE (<35 weeks)
  • Highly Abnormal - <12 pg/ml
  • Abnormal - >12 <100pg/ml
  • Normal - >100 pg/ml

• Cost savings - identify patients with low risk for delivery; accelerate diagnosis

• Point of care – results in 15 minutes

• Patient experience – faster diagnosis/improved communication/less time in hospital
“Pre-eclampsia has been a daily enigma for us. At last we have a potential test that can accurately risk discriminate, and provide some logical direction to our clinical decision making. **To me, this is the single most important advance in managing the condition in the last decade.**”

Professor Andrew Shennan  
*Kings College London*  
*UK PELICAN STUDY PI*
Thank you!

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