Pre-eclampsia and pregnancy

A Fact Sheet by Dr Yasmin Pilgrim

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Dr Yasmin Pilgrim's interests include:

Obstetrics

- Normal and complex/high pregnancy care
- Pre-pregnancy counselling
- Medical disorders in pregnancy
- Multiple pregnancy

Gynaecology

- Abnormal uterine bleeding
- Endometrial ablation and fibroid resection
- Cervical screening abnormalities
- Vulval itch and abnormalities
- Contraception (including tubal ligation)
- General gynaecology

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Pre-eclampsia is marked by increasing blood pressure after 20 weeks gestational age with one or more sign-symptoms of maternal complication or fetoplacental insufficiency. In Australia, 3.3% of pregnancies are affected by pre-eclampsia, with women over 35 years old having 4.5 times the risk of suffering pre-eclampsia compared to women aged 25-29.[1]

A high blood pressure measurement is usually recorded as two numbers, systolic >140 mmHg and diastolic >90 mmHg (140/90); also called hypertension. Pre-eclampsia is a common disorder that particularly affects women in their first pregnancy and can be variable in how it presents. Early detection and risk reduction are important in reducing the complications that occur in the mother and fetus.

A diagnosis of pre-eclampsia requires both;

- Hypertension arising after 20+0 weeks gestation confirmed on two or more occasions AND
- **One or more** of the organ/ systems features related to the mother and/or fetus[1]

Defining pre-eclampsia can be onerous as it is a syndrome characterised by a group of clinical features that when they occur together can lead to a diagnosis.

What are the diagnostic features?

Renal: acute kidney injury – serum or plasma creatinine >/= 90 micromol/L or random urine protein to creatinine ratio >/= 30mg/mmol

Hematological: thrombocytopenia (Platelets <150 x10^9/L)

Liver: new onset raised transaminases (over 40 IU/L) with or without epigastric or right upper quadrant pain

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Neurological:	headache, persistent visual disturbances, hyperreflexia with sustained clonus
Pulmonary:	pulmonary oedema
Uteroplacental:	fetal growth restriction, abnormal umbilical artery Doppler wave form

Why is it important to diagnose?

During pregnancy, severe hypertension can cause complication for the mother and fetus, including:

- Growth restriction for your baby
- Prematurity – if early delivery (prior to term 37 weeks)
- Placental abruption – whereby the placenta prematurely separates from the wall of the uterus
- Pre-eclampsia

Symptoms/Signs

- Severe headache
- Problems with vision (blurring, flashes light, stars in vision)
- Severe upper abdominal pain
- Vomiting
- Sudden or progressive peripheral oedema (swelling)

What are the risk factors?

- Hypertensive disease during a previous pregnancy or pre-existing hypertension
- Autoimmune conditions i.e. Anti-phospholipid syndrome or systemic lupus erythematosus
- Pre-existing diabetes or family history of diabetes
- Age 40 years or older
- Chronic renal disease
- Multiple pregnancy i.e. twins
- Body mass index (pre pregnancy) > 30m kg/m^2
- Previous still birth
- Previous placental abruption or intrauterine growth restriction

The severity progression and onset of symptoms are unpredictable with pre-eclampsia. Treatment is advised with anti-hypertensives and birth of the fetus and placenta is the definitive management. The unpredictable nature of pre-eclampsia mandates close clinical surveillance for all women. Increasing severity may be indicated by:

- Blood pressure of > 160/100 mm Hg
- Bloods pressure of 140/90 mmHg or higher with symptoms such as severe headaches, changes in vision, reduced urine output, pelvic pain.
- Signs of 'HELLP syndrome'

Pre-eclampsia is a disease of two individuals, the mother and the fetus. Optimal timing of birth requires evaluation of maternal and fetal risks with careful monitoring of the maternal condition and delivery planning with progression of the disease.

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Risk reduction interventions

One of the strongest risk factors is a history pre-eclampsia, making it challenging to identify women at risk in their first confinement. Risk reduction interventions to consider include anti-platelet agents i.e. Aspirin.

How does it work?

Likely that the drug works via beneficial actions on the maternal blood vessel endothelium. Sensible to start as early as possible, around the end of the first trimester but still offer it if patients are beyond 16 weeks gestation.

Pregnant women treated with antiplatelet agents demonstrated a reduction in; [2,3]

- Pre-eclampsia by 18% (reference Cochrane Meta-analysis 2019)
- Small for gestational age newborns by 6%
- Preterm birth less than 37 weeks by 9%
- Perinatal mortality by 14%

Women at high risk of pre-eclampsia should be advised to start low dose aspirin 100-150mg daily, ideally prior to 16+0 weeks gestation and cease at 36 weeks gestation. The risks of aspirin include an reported 6% increase in post-partum hemorrhage.

Long term adverse maternal outcomes associated with pre-eclampsia

If current or prior pregnancy was complicated by; [1]

If pregnancy complicated by;	Recurrence risk of pre-eclampsia
Gestational hypertension	2-7%
Pre-eclampsia	16%
Severe pre-eclampsia	
- Less than 34 weeks	25%
- Less than 28 weeks	55%

Pre-eclampsia is generally symptomless, making it difficult to diagnose. Early screening of women in the early stages of pre-eclampsia has proven highly successful in reducing maternal and fetal complications. Antenatal care should be tailored based on risk predictions of the chances of pre-eclampsia developing. The risk progressively increases in the third trimester making more frequent blood pressure checks imperative.

References

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