CLINICAL GUIDELINE

Hypertension, Antenatal and Daycare

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Important Note:

The Intranet version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

Greater Glasgow & Clyde
Obstetric Guidelines

Hypertension - Antenatal & Daycare Guideline

Chronic Hypertension in Pregnancy
New Hypertension in Pregnancy

- Definitions
    - **Chronic hypertension**: Hypertension present at booking visit or before 20 weeks, or that is being treated at time of referral to maternity services. Can be primary or secondary in aetiology.
    - **Gestational hypertension**: New hypertension presenting after 20 weeks without significant proteinuria.
    - **Gestational proteinuria**: Significant proteinuria diagnosed after 20 weeks in the absence of hypertension
    - **Pre-eclampsia**: New onset of hypertension after 20 weeks with one or more of the following new onset conditions:
        - significant proteinuria (PCR ≥ 30mg/mmol or ACR ≥ 8mg/mmol)
        - renal involvement (creatinine ≥90)
        - liver involvement (ALT ≥40 IU/l)
        - haematological abnormalities (thrombocytopenia – platelets <150)
        - uteroplacental dysfunction (FGR, abnormal umbilical artery dopplers, stillbirth)
    - **Severe pre-eclampsia**: Pre-eclampsia with severe hypertension and/or with symptoms, and/or biochemical and/or haematological impairment.
    - **Eclampsia**: Convulsive condition associated with pre-eclampsia.
    - **HELLP Syndrome**: haemolysis, elevated liver enzymes, low platelets.

Refer women to Daycare or MAU if:

- BP >140/90 and <150/100 on two readings with no proteinuria then refer up within 48 hours
- BP >150/100 or lower with proteinuria then same day referral
- Symptoms of PET - refer same day
- If dipstick proteinuria ≥1+ then send for PCR, if >30 then refer
- If dipstick proteinuria ≥2+ then refer within 48 hours
- If dipstick ≥1+ but symptoms then same day referral

Management of Chronic Hypertension in Pregnancy

Women diagnosed with hypertension prior to 20 weeks gestation or with a pre-pregnancy diagnosis of hypertension should be referred to the appropriate clinic in your unit

Women with chronic hypertension should be prescribed Aspirin 150mg once daily from at least 12 weeks gestation through to 38 weeks to reduce the risk of pre-eclampsia.

An assessment of proteinuria and renal function should be obtained at booking or at diagnosis (whichever is earlier).

Women with significant proteinuria (PCR>30mg/mmol) before 20 weeks should be investigated for underlying renal disease

All women with chronic hypertension should be evaluated by the clinical team as to the need for an echocardiogram (e.g. long standing hypertension, other cardiovascular comorbidities)

Women with a diagnosis of chronic hypertension should be informed of the increased risk of fetal growth restriction and superimposed pre-eclampsia requiring preterm delivery.

Where possible home blood pressure monitoring should be started and supported.

- A target blood pressure must be recorded in the woman's notes - aiming for ≤135/85 mmHG

In women with chronic hypertension uterine artery Doppler should be performed at 20-21 weeks.

- ***Women with abnormal uterine artery Dopplers should have 4 weekly growth scans from 26 weeks (or earlier if indicated),***
- ***women with normal uterine artery Doppler should be offered 4 weekly growth scans from 32 weeks.***

Treatment of chronic hypertension

Continue with existing antihypertensive treatment if safe in pregnancy (labetalol, nifedipine, methyldopa or atenolol/bisoprolol/amlodipine with discussion), or switch to an alternative treatment, unless:

- sustained systolic blood pressure is less than 110 mmHg or
- sustained diastolic blood pressure is less than 70 mmHg or
- the woman has symptomatic hypotension.

Offer antihypertensive treatment to pregnant women who have chronic hypertension and who are not already on treatment if they have:

- sustained systolic blood pressure of 140 mmHg or higher or
- sustained diastolic blood pressure of 90 mmHg or higher

When using medicines to treat hypertension in pregnancy, aim for a target blood pressure of 135/85 mmHg

- First line is labetalol (Use with caution if underlying asthma or diabetes) Starting dose depending on booking blood pressure (from 100mg BD up to 300mg QDS)
- Second line is nifedipine MR (coracten SR or tensiine MR) (as adjunct or if labetalol contraindicated) Continue with one brand once started
- Methyldopa - start 250mg BD and increase incrementally. (if intolerant of labetalol/nifedipine)

Offer one off placental growth factor (PlGF) testing to help rule out pre- eclampsia between 20 weeks and up to 35+6 weeks of pregnancy, if women with chronic hypertension are suspected of developing pre-eclampsia.

Antenatal appointments

In women with chronic hypertension, schedule additional antenatal appointments based on the individual needs of the woman and her baby. This may include: weekly appointments if hypertension is poorly controlled or appointments every 2-4 weeks if hypertension is well-controlled.

Timing of birth

Do not routinely offer planned early birth before 37 weeks to women with chronic hypertension whose blood pressure is lower than 160/110 mmHg, unless there are other medical or obstetric indications

For women with chronic hypertension, with or without antihypertensive medication, with stable blood pressure, delivery should be offered around 39-40 weeks following discussion with the woman and a full assessment of maternal and fetal factors

Where possible a plan for postnatal antihypertensive medications should be made and documented prior to delivery

If planned early birth is necessary, offer a course of antenatal corticosteroids and magnesium sulfate if indicated, in line with the NICE guideline on preterm labour and birth

Management of Gestational Hypertension

Gestational hypertension can become pre-eclampsia at any stage and the progression to pre-eclampsia is unpredictable.

Women with the following should be considered to be at higher risk of progression to pre-eclampsia:

- Nulliparity
- age ≥40 years
- pregnancy interval of more than 10 years
- family history of pre-eclampsia
- multiple pregnancy
- BMI of 35 kg/m² or more
- gestational age <32 weeks at diagnosis of hypertension
- previous history of pre-eclampsia or gestational hypertension
- pre-existing vascular disease
- pre-existing kidney disease

If the diagnosis is made before 37 weeks then an ultrasound for fetal growth, liquor volume and umbilical artery Doppler should be performed and repeated as clinically indicated

PLGF-based testing should be considered <35+6 weeks to aid the diagnosis of pre-eclampsia and the frequency of subsequent monitoring.

Treatment of non-severe gestational hypertension (BP 140/90–159/109mm Hg)

Admission to hospital is not necessary if there are no features of pre-eclampsia

and BP is well controlled with treatment.

Hypertension should be treated if persistently >140/90 mmHg with a view to maintaining blood pressure around 135/85mmHg.

- First line is labetalol **(**Use with caution if underlying asthma or diabetes **)** Start at TDS in pregnancy
- Second line is nifedipine SR (coracten SR on tensipine MR) (as adjunct or if labetalol contraindicated). Start at 10-20mg BD and increase to maximum 40mg max.

Start home BP monitoring or measure BP at least fortnightly.

Fetal monitoring

USS for growth, liquor volume and umbilical artery doppler at least 4 weekly if normal

Treatment of women with severe Gestational hypertension (BP ≥ 160/110mm Hg)

Admit to hospital until BP is well controlled (<150/100mmHg).

Antihypertensive medication should be commenced as for non-severe hypertension

Ensure there is no proteinuria or features of pre-eclampsia

Measure the woman's BP every 15-30 minutes until <160/110mmHg and then at least every 4 hours until the target is achieved. (**It is not usually necessary to measure blood pressure between 22.00 and 06.00 if the blood pressure at 22.00 is satisfactory and there are no other concerns).**

In women receiving outpatient care after severe hypertension has been effectively

treated in hospital, ongoing surveillance should continue as for non-severe hypertension

Fetal Monitoring

CTG at diagnosis

USS for growth, liquor volume and umbilical artery doppler as soon as possible.

Repeat scans fortnightly with future monitoring depending on outcome.

Timing of Birth

Do not offer planned early birth before 37 weeks to women with gestational hypertension whose blood pressure is lower than 160/110 mmHg, unless there are other medical/ obstetric indications.

For women with gestational hypertension whose blood pressure is lower than 160/110 mmHg after 37 weeks, timing of birth, and maternal and fetal indications for birth should be agreed between the woman and the senior obstetrician.

Management of Gestational Hypertension

	Hypertension 140/90–159/109 mmHg	**Severe Hypertension >160/110 mmHg**
Admission to hospital	Not unless symptomatic	Admit but if BP controlled manage as OP
Treatment	If BP remains >140/90	All women
Target BP	Aim ≤ 135/85 mmHg	Aim ≤ 135/85 mmHg
BP measurement	Home monitoring or daycare at least once weekly	Every 15-30 mins until <160/110 mmHg
Urine dipstick testing	Along with BP check unless proteinuria already diagnosed	Daily during admission
Blood tests	FBC, UEs, LFTs, Coag if proteinuria when at clinic	FBC, UEs, LFT weekly
Fetal monitoring	Fetal heart auscultation at every visit USS at diagnosis and every 2 weeks or as clinically indicated CTG only if clinically indicated	Fetal heart auscultation at every visit USS at diagnosis and every 2 weeks or as clinically indicated CTG at diagnosis and then only if clinically indicated
Birth planning	IOL/PCB 38-39 weeks	IOL/PCB depending gestation, clinical scenario, maternal choice

Assessment of proteinuria in hypertensive disorders of pregnancy

Interpret proteinuria measurements for pregnant women in the context of a full clinical review of symptoms, signs and other investigations for pre- eclampsia.

An MSSU should always be performed in women with any degree of proteinuria to exclude urinary tract infection so two samples may be required

If dipstick screening is positive (1+ or more), use protein:creatinine ratio to quantify proteinuria in pregnant women.

If using protein:creatinine ratio to quantify proteinuria in pregnant women:

- use 30 mg/mmol as a threshold for significant proteinuria
- if the result is 30 mg/mmol or above and there is still uncertainty about the diagnosis of pre-eclampsia, consider re-testing on a new sample, alongside clinical review.
- A PCR ≥30 but ≤50mg/mmol should be considered borderline for pre-eclampsia in women with mild/moderate hypertension where the maternal/fetal condition is otherwise reassuring and a repeat test within 48-72 hours should be considered.

Do not use first morning urine void or 24 hour urine collection to quantify proteinuria in pregnant women.

Once a diagnosis of significant proteinuria has been made, it is NOT necessary to repeat PCR assessments. Deteriorating proteinuria does not predict worse maternal or fetal outcomes

Gestational Proteinuria (without hypertension)

A small subset of women present with proteinuria in the absence of hypertension. In some cases this is physiological or attributable to a urinary tract infection, but it may signal the development of pre-eclampsia. Around 50% of women with isolated proteinuria develop pre-eclampsia and importantly, even in the absence of hypertension, these women are at significantly increased risk of adverse pregnancy outcomes such as fetal growth restriction and placental abruption.

In presence proteinuria FBC and UEs should be sent urgently. (Urea <4, Cr <60 normal)

They should either go on the BP home monitoring scheme or have their BP checked once per week and have 4 weekly growth scans.

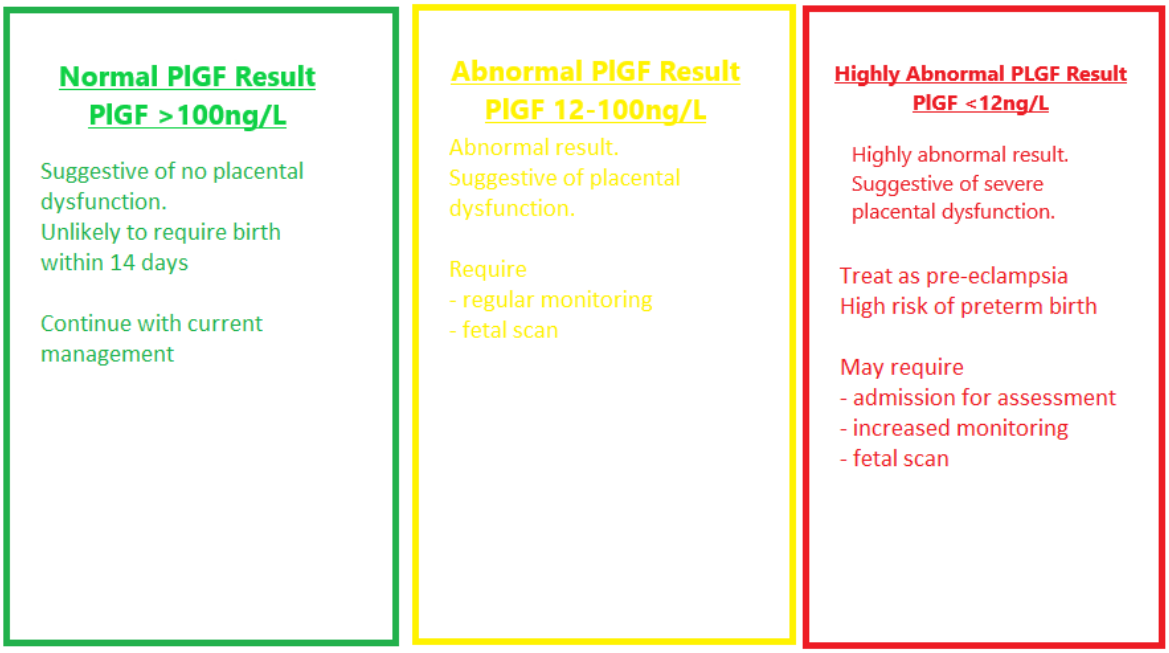
If hypertension develops in women with proteinuria they should be managed according to pre-eclampsia guidelines.

PlGF Testing

Placental growth factor can be considered as a one-off test in women with suspected preterm pre- eclampsia up to 35+6 weeks' gestation. PlGF test results should be used alongside clinical information for decision making.

Situations in which a single PlGF test might be considered include:

- chronic or gestational hypertension in whom there is clinical uncertainty about whether PET is developing
- chronic or gestational proteinuria in whom there is clinical uncertainty about whether PET is developing
- fetal growth restriction likely due to placental insufficiency in whom there is clinical uncertainty about whether PET is developing



PlGF testing may differ in pregnancies with more than one baby because of increased placental mass. PLGF testing in this group must therefore be discussed with a senior clinician due to the caution that is needed when interpreting results.