Wirral University Teaching Hospital NHS
NHS Foundation Trust

ANTENATAL/ INTRAPARTUM CARE **WIRRAL WOMEN & CHILDREN'S HOSPITAL**

Guideline No: 15 Hypertension in Pregnancy

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CONTENTS

Quick Reference Guide - Reducing the Risk of Pre-Eclampsia

If at least two moderate risk factors
Or
If at least one high risk factor for pre-eclampsia

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Advise woman to take aspirin 75mg/day from 12 weeks until birth

Risk factors for pre-eclampsia

Moderate

- First pregnancy
- Age >40yrs
- Pregnancy interval >10yrs
- BMI >35 at booking
- Family history of pre-eclampsia
- Multiple pregnancy

High

- Hypertensive disease in previous pregnancy
- Chronic hypertension
- Chronic kidney disease
- Autoimmune disease (e.g. SLE; antiphospholipid syndrome)
- Type 1 or 2 diabetes mellitus

If previous:

- Severe pre-eclampsia
- Pre-eclampsia needing birth <34 weeks
- Pre-eclampsia with baby's birth weight < 10th centile
- Intrauterine death
- Placental abruption

→

Carry out ultrasound for fetal growth, AFI, and umbilical artery Doppler velocimetry:

- At 28-30 weeks
- Repeat 4 weeks later
- Or at least 2 weeks before previous gestational age of onset if < 28 weeks

Quick Reference Guide - Chronic Hypertension

Antenatal Care

Consultations

- Schedule additional appointments based on individual needs

Timing of birth

If BP <160/100mmHg with or without antihypertensive treatment:

- Do not offer birth < 37/40
- After 37/40 discuss with senior obstetrician
- If refractory severe chronic hypertension, offer birth after course of steroids (if required) has been completed

Antihypertensive treatment

- Stop ACE inhibitors/ARBs/Diuretics and offer alternatives
- Convert to labetalol 200mg po bd (max 2.4g per day). Alternatives include nifedipine as well as methyldopa.
- Aim for BP <150/100mmHg
- If target organ damage, aim for BP <140/90
- Do not offer treatment to lower diastolic BP <80mmHg
- If secondary chronic hypertension, refer to medical disorders clinic

Fetal Monitoring

At 28-30 and 32-34 weeks carry out:

- Ultrasound for growth, AFI, umbilical artery Doppler
- If results normal, do not repeat scans unless clinically indicated

If fetal activity abnormal carry out CTG +/- BPP

Postnatal Care

Antihypertensive treatment

- Aim to keep BP <140/90mmHg
- Measure BP:
  - Daily for first 2 days after birth
  - At least once 3-5 days after birth
  - As clinically indicated if antihypertensive treatment changed
- Continue antenatal hypertensive treatment, and GP review at 2 weeks
- If methyldopa was used during pregnancy, stop within 2 days of birth and restart pre-pregnancy antihypertensive treatment

If breastfeeding

- Avoid diuretics
- Offer woman information about safety of drugs for babies receiving breast milk. Contact pharmacy for further information.

Quick Reference Guide – Gestational Hypertension

Antenatal Care

- A doctor or AMP should carry out a full assessment
- Take into account previous history of pre-eclampsia or gestational hypertension, pre-existing vascular or kidney disease, moderate risk factors for pre-eclampsia, and gestational age at presentation

Mild hypertension
(BP 140/90 – 149/99 mmHg)

- Do not admit
- Do not treat hypertension
- Measure BP and perform urinalysis weekly
- Perform urine PCR if proteinuria
- Routine antenatal bloods
- If presenting before 32 weeks or at high risk of pre-eclampsia, measure BP and test for proteinuria twice weekly

Moderate hypertension
(BP 150/100 – 159/109 mmHg)

- Do not admit
- Treat with labetalol (unless contraindicated; alternatives are nifedipine or methyldopa)
- Aim to keep BP <150/80-100 mmHg
- Measure BP and test for proteinuria twice weekly
- Baseline PET bloods
- No further blood tests if no subsequent proteinuria

Severe hypertension
(BP >160/110 mmHg)

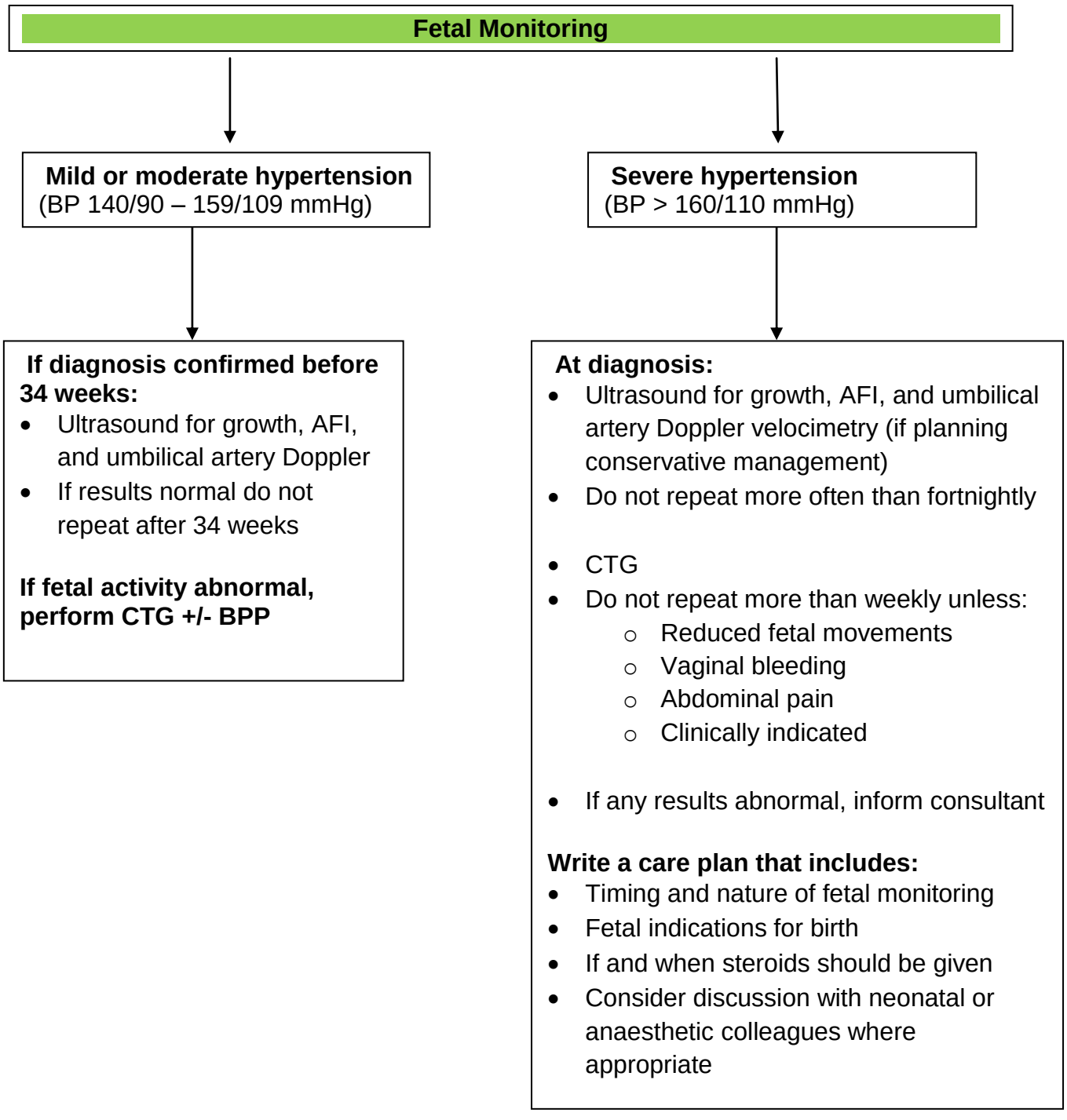
- Admit until BP controlled <159/109 mmHg
- Treat with labetalol (unless contraindicated; alternatives are nifedipine or methyldopa)
- Aim to keep BP <150/80-100 mmHg
- Measure BP 4 hourly
- Test for proteinuria daily
- Baseline PET bloods, and then repeat weekly, or more regularly if clinically indicated

Timing of birth

- Do not offer birth before 37 weeks
- After 37 weeks, timing of and maternal and fetal indications for birth should be agreed between woman and senior obstetrician
- If refractory severe gestational hypertension, offer birth after course of steroids (if required) is completed

If discharged after severe hypertension has been effectively controlled in hospital, follow-up as per moderate hypertension, but also perform weekly PET bloods

Gestational Hypertension (Continued)



Gestational Hypertension (continued)

Postnatal Care

- Continue antenatal antihypertensive treatment
- If no antenatal treatment, start antihypertensive if BP >150/100 mmHg
- Antihypertensive choice dependent on whether the woman is breastfeeding or not
    - if breastfeeding avoid amlodipine, diuretics, angiotensin II receptor antagonists and ACE inhibitors except enalapril or captopril

- Measure BP:
    - Daily for first 2 days after birth
    - At least once days 3-5 after birth
    - As clinically indicated if treatment changed
- If methyldopa was used during pregnancy, stop within 2 days of birth
- If BP <130/80 mmHg, reduce antihypertensive treatment
- If BP <140/90 mmHg, consider reducing antihypertensive treatment

- GP to review BP at 2 weeks and ongoing

Quick Reference Guide - Pre-Eclampsia

Antenatal Care

- A doctor or AMP should assess the woman
- Admit
- Do not repeat quantification of proteinuria
- Carry out fetal monitoring

Mild hypertension (BP 140/90 – 149/99)

- Do not treat
- 4-hourly BP
- PET bloods twice weekly

Moderate hypertension (BP 150/100 – 159/109)

- Treat with labetalol (unless contraindicated)
- Aim to keep BP <150/80-100
- 4-hourly BP
- PET bloods three times a week

Severe hypertension (BP > 160/110)

- Refer to pre-eclampsia guideline No.12
- Treat with first-line oral labetalol
- If able to reduce BP to <150/80-100 mmHg

Timing of Birth:

Before 34 weeks

- Manage conservatively
- Consultant to document maternal (biochemical, haematological, and clinical) and fetal indications for elective birth before 34 weeks
- Offer birth if severe refractory hypertension, or maternal or fetal indication develops as defined in plan (and after discussion with neonatal and anaesthetic teams, and course of steroids completed)

34+0 – 36+6 weeks

- Recommend birth after 34 weeks if pre-eclampsia with severe hypertension, BP controlled and, if required, course of steroids completed
- Offer birth at 34+0 – 36+6 weeks pre-eclampsia with mild to moderate hypertension, depending on maternal and fetal condition and risk factors

After 37 weeks

- Recommend birth within 24-48 hours if pre-eclampsia with mild or moderate hypertension

Pre-Eclampsia (Continued)

Fetal Monitoring

- **Ultrasound for fetal growth, AFI, umbilical artery Doppler**
  - Carry out at diagnosis if conservative management planned
  - Do not repeat more than every 2 weeks
- **CTG**
  - Carry out at diagnosis
  - Repeat if reduced movements/PV bleed/abdo pain/deterioration in maternal condition

Postnatal Care

- If methyldopa used to treat pre-eclampsia, stop within 2 days
- PET bloods at 48-72 hrs; do not repeat if normal
- Repeat PET bloods as clinically indicated
- Discharge to community care if BP <150/100 mmHg, blood tests stable, and no symptoms of pre-eclampsia
- Measure BP every 1-2 days for 2 weeks after transfer to community care, until antihypertensive treatment stopped and no hypertension
- GP review at 2 weeks for ongoing management
- If breastfeeding, avoid diuretics

If no antenatal antihypertensive:

- Measure BP
  - 4 hourly whilst inpatient
  - At least once at days 3-5
  - Alternate days if BP still raised 3-5 days after birth
- If BP >150/100, start antihypertensive treatment

If antenatal antihypertensive treatment:

- Continue antenatal treatment
- Reduce antihypertensive if BP <130/80
- Consider reducing if <140/90
- Measure BP 4 hourly whilst inpatient

1.0 INTRODUCTION

Hypertension in pregnancy remains one of the leading causes of maternal morbidity and mortality.

Hypertensive disorders also carry a risk for the baby including risk of stillbirth, small for gestational age and preterm delivery.

2.0 GUIDELINE REGIME

2.1 Reducing the Risk of Hypertensive Disorders in Pregnancy

2.1.1 Symptoms of pre-eclampsia

Pregnant women should be made aware of the need to seek immediate advice from a healthcare professional if they experience symptoms of pre-eclampsia. Symptoms include:

- Severe headache
- Problems with vision, such as blurring or flashing of vision
- Severe pain just below the ribs
- Vomiting
- Sudden swelling of the face, hands or feet.

2.1.2 Antiplatelet agents

Advise women at high risk of pre-eclampsia to take 75 mg of aspirin daily from12 weeks until the birth of the baby. Women at high risk are those with any of the following:

- Hypertensive disease during a previous pregnancy
- Chronic kidney disease
- Autoimmune disease such as systemic lupus erythematosis or antiphospholipid syndrome
- Type 1 or type 2 diabetes
- Chronic hypertension.

Advise women with more than one moderate risk factor for pre-eclampsia to take 75 mg of aspirin daily from 12 weeks until the birth of the baby. Factors indicating moderate risk are:

- First pregnancy
- Age 40 years or older
- Pregnancy interval of more than 10 years
- Body mass index (BMI) of 35 kg/m_2 or more at first visit
- Family history of pre-eclampsia
- Multiple pregnancy.

2.2 Management of Pregnancy with Chronic Hypertension

2.2.1 Pre-Pregnancy Advice

Tell women who take angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs):

- That there is an increased risk of congenital abnormalities if these drugs are taken during pregnancy

Tell women who take chlorothiazide diuretics:

- That there may be an increased risk of congenital abnormality and neonatal complications if these drugs are taken during pregnancy

In both cases women need to discuss other antihypertensive treatment with the healthcare professional responsible for managing their hypertension, if they are planning pregnancy.

Stop antihypertensive treatment in women taking ACE inhibitors or ARBs if they become pregnant and offer alternatives.

Tell women who take antihypertensive treatments other than ACE inhibitors, ARBs or chlorothiazide diuretics that the limited evidence available has not shown an increased risk of congenital malformation with such treatments

2.2.2 Aims of Treatment of Hypertension

- In pregnant women with uncomplicated chronic hypertension aim to keep blood pressure lower than 150/100 mmHg.

- Do not offer pregnant women with uncomplicated chronic hypertension treatment to lower diastolic blood pressure below 80 mmHg.

- Offer pregnant women with target-organ damage secondary to chronic hypertension (for example, kidney disease) treatment with the aim of keeping blood pressure lower than 140/90 mmHg.

- Offer pregnant women with secondary chronic hypertension referral to a specialist in hypertensive disorders.

- Offer women with chronic hypertension antihypertensive treatment dependent on pre-existing treatment, side-effect profiles and teratogenicity.

2.2.3 Timing of birth

- Do not offer birth to women with chronic hypertension whose blood pressure is lower than 160/110 mmHg, with or without antihypertensive treatment, before 37 weeks.

- For women with chronic hypertension whose blood pressure is lower than 160/110 mmHg after 37 weeks, with or without antihypertensive

treatment, timing of birth and maternal and fetal indications for birth should be agreed between the woman and the senior obstetrician.

- Offer birth to women with refractory severe chronic hypertension, after a course of corticosteroids (if required) has been completed.

2.2.4 Postnatal monitoring, investigation and treatment

In women with chronic hypertension who have given birth, measure BP:

- Daily for the first 2 days after birth
- At least once between day 3 and day 5 after birth
- As clinically indicated if antihypertensive treatment is changed after birth.

In women with chronic hypertension who have given birth, aim to keep blood pressure lower than 140/90 mmHg.

If a woman has taken methyldopa to treat chronic hypertension during pregnancy, stop within 2 days of birth and restart the antihypertensive treatment the woman was taking before she planned the pregnancy. If the woman is breastfeeding ensure the chosen antihypertensive treatment is clinically compatible – seek pharmacy advice.

All patients will be discharged with 2 weeks supply of antihypertensive treatment with plan for GP follow up at 2 weeks to plan ongoing management.

2.3 Management of Pregnancy with Gestational Hypertension

2.3.1 Treatment of hypertension

In women with gestational hypertension, take account of the following risk factors that require additional assessment and follow-up:

- nulliparity
- age 40 years or older
- pregnancy interval of more than 10 years
- family history of pre-eclampsia
- multiple pregnancy
- BMI of 35 kg/m^2 or more
- gestational age at presentation
- previous history of pre-eclampsia or gestational hypertension
- pre-existing vascular disease
- pre-existing kidney disease

Document a plan of care in the healthcare record:

Table 1:

Degree of hypertension	**Mild (140/90 to 149/ 99 mmHg)**	**Moderate (150/100 to 159/ 109 mmHg)**	**Severe (160/110 mmHg or higher)**
Admit to hospital	No	No	Yes (until blood pressure is 159/ 109 mmHg or lower)
Treat	No	With oral labetalol* as first-line treatment to keep: • diastolic blood pressure between 80–100 mmHg • systolic blood pressure less than 150 mmHg	With oral labetalol* as first-line treatment to keep: • diastolic blood pressure between 80–100 mmHg • systolic blood pressure less than 150 mmHg
Measure blood pressure	Not more than once a week	At least twice a week	At least four times a day
Test for proteinuria	At each visit check urinalysis or measure urine protein:creatinine ratio	At each visit check urinalysis or measure urine protein:creatinine ratio	Daily using urinalysis or urine protein:creatinine ratio
Blood tests	Only those for routine antenatal care	Test FBC, U&E, LFT, Urates Do not carry out further blood tests if no proteinuria at subsequent visits	Test at presentation and then monitor weekly: • FBC, U&E, LFT, Urates

*First-line treatment: Labetalol 200mg po BD, dose may be titrated up to achieve target BP, to a max. of 2.4g daily in divided doses.
If beta-blocker is contra-indicated (e.g. if woman is asthmatic) may use second-line alternatives:

- methyldopa 250micrograms po BD (max. 3mg daily in divided doses) or,
- nifedipine MR (e.g Adalat LA po 20mg OD); max. 90mg daily.

- Only offer women with gestational hypertension antihypertensive treatment other than labetalol after considering side-effect profiles for the woman, fetus and newborn baby. Alternatives include methyldopa and nifedipine.
- In women receiving outpatient care for severe gestational hypertension, after it has been effectively controlled in hospital, measure blood pressure and test urine for proteinuria twice weekly and carry out weekly blood tests.
- In women with mild hypertension presenting before 32 weeks, or at high risk of pre-eclampsia, measure blood pressure and test urine for proteinuria twice weekly.
- Do not offer bed rest in hospital as a treatment for gestational hypertension.

2.3.2 Timing of birth

- Do not offer birth before 37 weeks to women with gestational hypertension whose blood pressure is lower than 160/110 mmHg, with or without antihypertensive treatment.
- For women with gestational hypertension whose blood pressure is lower than 160/110 mmHg after 37 weeks, with or without antihypertensive treatment, timing of birth, and maternal and fetal indications for birth should be agreed between the woman and the senior obstetrician.
- Offer birth to women with refractory severe gestational hypertension after a course of corticosteroids (if required) has been completed.

2.3.3 Postnatal investigation, monitoring and treatment

In women with gestational hypertension who have given birth, measure blood pressure:

- Daily for the first 2 days after birth
- At least once between day 3 and day 5 after birth
- As clinically indicated if antihypertensive treatment is changed after birth.

In women with gestational hypertension who have given birth:

- Continue use of antenatal antihypertensive treatment
- Consider reducing antihypertensive treatment if their blood pressure falls below 140/90 mmHg
- Reduce antihypertensive treatment if their blood pressure falls below 130/80 mmHg.

If a woman has taken methyldopa to treat gestational hypertension, stop within 2 days of birth.

For women with gestational hypertension who did not take antihypertensive treatment and have given birth, start antihypertensive treatment if their blood pressure is higher than 149/99 mmHg.

2.4 Management of pregnancy with pre-eclampsia

READ IN CONJUNCTION WITH GUIDELINE 12 – PREECLAMPSIA & ECLAMPSIA

2.4.1 Assessment of Proteinuria in Hypertensive Disorders of Pregnancy

Request a urine protein:creatinine ratio for quantifying proteinuria

Diagnose significant proteinuria if the urinary protein:creatinine ratio is greater than 30 mg/mmol

2.4.2 Treatment of hypertension

Document a plan of care in the healthcare record:

Table 2 – Management of Pregnancy with Pre-Eclampsia

Degree of hypertension	**Mild(140/90 to 140/99mmHg)**	**Moderate (150/100 to 159/ 109 mmHg)**	**Severe (160/110 mmHg or higher)**
Admit to hospital	Yes	Yes	Yes , and consider need for critical care
Treat	No	With oral labetalol* as first-line treatment to keep: • diastolic blood pressure between 80–100 mmHg • systolic blood pressure less than 150 mmHg	With oral labetalol* as first-line treatment to keep: • diastolic blood pressure between 80–100 mmHg • systolic blood pressure less than 150 mmHg
Measure blood pressure	At least 4 times a day	At least 4 times a day	More than 4 times a day, depending on clinical circumstances
Test for proteinuria	Do not repeat quantification of proteinuria	Do not repeat quantification of proteinuria	Do not repeat quantification of proteinuria
Blood tests (FBC, U&E, LFT, Urate)	Monitor twice a week	Monitor three times a week	Monitor three times a week

*First-line treatment: Labetalol 200mg po BD, dose may be titrated up to achieve target BP, to a max. of 2.4g daily in divided doses.
If beta-blocker is contra-indicated (e.g. if woman is asthmatic) may use second-line alternatives:

- methyldopa 250micrograms po BD (max. 3mg daily in divided doses) or,
- nifedipine MR (e.g Adalat LA po 20mg OD); max. 90mg daily.

2.4.3 Timing of birth

Manage pregnancy in women with pre-eclampsia conservatively (that is, do not plan same-day delivery of the baby) until 34 weeks.

Consultant obstetric staff should document in the woman's notes the maternal (biochemical, haematological and clinical) and fetal thresholds for elective birth before 34 weeks in women with pre-eclampsia.

Consultant obstetric staff should write a plan for antenatal fetal monitoring during birth.

Offer birth to women with pre-eclampsia before 34 weeks, after discussion with neonatal and anaesthetic teams and a course of corticosteroids has been given if:

- Severe hypertension develops refractory to treatment
- Maternal or fetal indications develop as specified in the consultant plan

Recommend birth for women who have pre-eclampsia with severe hypertension after 34 weeks when their blood pressure has been controlled and a course of corticosteroids has been completed (if appropriate).

Offer birth to women who have pre-eclampsia with mild or moderate hypertension at 34^{+0} to 36^{+6} weeks depending on maternal and fetal condition, risk factors and availability of neonatal intensive care.

Recommend birth within 24–48 hours for women who have pre-eclampsia with mild or moderate hypertension after 37^{+0} weeks.

2.4.4 Postnatal investigation, monitoring and treatment (including after discharge from critical care)

2.4.4.1 Blood pressure

In women with pre-eclampsia who did not take antihypertensive treatment and have given birth, measure blood pressure:

- At least four times a day while the woman is an inpatient
- At least once between day 3 and day 5 after birth
- On alternate days until normal if blood pressure was abnormal on days 3–5.

In women with pre-eclampsia who did not take antihypertensive treatment and have given birth, start antihypertensive treatment if blood pressure is 150/100 mmHg or higher.

Ask women with pre-eclampsia who have given birth about severe headache and epigastric pain each time blood pressure is measured.

In women with pre-eclampsia who took antihypertensive treatment and have given birth, measure blood pressure:

- At least four times a day while the woman is an inpatient
- Every 1–2 days for up to 2 weeks after transfer to community care until the woman is off treatment and has no hypertension.

For women with pre-eclampsia who have taken antihypertensive treatment and have given birth:

- Continue antenatal antihypertensive treatment
- Consider reducing antihypertensive treatment if their blood pressure falls below 140/90 mmHg
- Reduce antihypertensive treatment if their blood pressure falls below 130/80 mmHg.

If a woman has taken methyldopa to treat pre-eclampsia, stop within 2 days of birth.

Offer women with pre-eclampsia who have given birth transfer to community care if all of the following criteria have been met:

- There are no symptoms of pre-eclampsia
- Blood pressure, with or without treatment, is 149/99 mmHg or lower
- Blood test results are stable or improving.

Write a care plan for women with pre-eclampsia who have given birth and are being transferred to community care that includes all of the following:

- Who will provide follow-up care, including medical review if needed
- Frequency of blood pressure monitoring
- Thresholds for reducing or stopping treatment
- Indications for referral to primary care for blood pressure review
- Self-monitoring for symptoms.

Offer women who have pre-eclampsia and are still on antihypertensive treatment 2 weeks after transfer to community care a medical review.

Offer all women who have had pre-eclampsia a medical review at the postnatal review (6–8 weeks after the birth).

Offer women who have had pre-eclampsia and who still need antihypertensive treatment at the postnatal review (6–8 weeks after the birth) a specialist assessment of their hypertension.

2.4.4.2 Haematological and biochemical monitoring

In women who have pre-eclampsia with mild or moderate hypertension, or after step-down from critical care:

- Measure platelet count, transaminases and serum creatinine 48–72 hours after birth or step-down
- Do not repeat platelet count, transaminases or serum creatinine measurements if results are normal at 48–72 hours.

If biochemical and haematological indices are improving but stay within the abnormal range in women with pre-eclampsia who have given birth, repeat platelet count, transaminases and serum creatinine measurements as clinically indicated and at the postnatal review (6–8 weeks after the birth).

If biochemical and haematological indices are not improving relative to pregnancy ranges in women with pre-eclampsia who have given birth, repeat platelet count, transaminases and serum creatinine measurements as clinically indicated.

In women with pre-eclampsia who have given birth, carry out a urinary reagent-strip test for proteinuria at the postnatal review (6–8 weeks after the birth).

In women with pre-eclampsia who have given birth and have stepped down from critical care level 2, do not measure fluid balance if creatinine is within the normal range.

Offer women who had pre-eclampsia and still have proteinuria (1+ or more) at the postnatal review (6–8 weeks after the birth) a further review at 3 months after the birth to assess kidney function and consider offering them a referral for specialist kidney assessment.

2.5 Fetal Monitoring

2.5.1 Chronic hypertension

In women with chronic hypertension, carry out ultrasound fetal growth and amniotic fluid volume assessment and umbilical artery doppler velocimetry between 28 and 30 weeks and between 32 and 34 weeks. If results are normal, do not repeat at more than 34 weeks, unless otherwise clinically indicated.

In women with chronic hypertension, only carry out cardiotocography if fetal activity is abnormal.

2.5.2 Mild or moderate gestational hypertension

In women with mild or moderate gestational hypertension, carry out ultrasound fetal growth and amniotic fluid volume assessment and umbilical artery

Doppler velocimetry if diagnosis is confirmed at less than 34 weeks. If results are normal, do not repeat at more than 34 weeks, unless otherwise clinically indicated.

In women with mild or moderate gestational hypertension, do not carry out ultrasound fetal growth and amniotic fluid volume assessment and umbilical artery doppler velocimetry if diagnosis is confirmed after 34 weeks, unless otherwise clinically indicated.

In women with mild or moderate gestational hypertension, only carry out cardiotocography if fetal activity is abnormal.

2.5.3 Severe gestational hypertension or pre-eclampsia

Carry out cardiotocography at diagnosis of severe gestational hypertension or pre-eclampsia.

If conservative management of severe gestational hypertension or pre-eclampsia is planned, carry out all the following tests at diagnosis:

- Ultrasound fetal growth and amniotic fluid volume assessment
- Umbilical artery doppler velocimetry.

If the results of all fetal monitoring are normal in women with severe gestational hypertension or pre-eclampsia, do not routinely repeat cardiotocography more than weekly.

In women with severe gestational hypertension or pre-eclampsia, repeat cardiotocography if any of the following occur:

- The woman reports a change in fetal movement
- Vaginal bleeding
- Abdominal pain
- Deterioration in maternal condition

In women with severe gestational hypertension or pre-eclampsia, do not routinely repeat ultrasound fetal growth and amniotic fluid volume assessment or umbilical artery doppler velocimetry more than every 2 weeks.

If the results of any fetal monitoring in women with severe gestational hypertension or pre-eclampsia are abnormal, tell a consultant obstetrician.

For women with severe gestational hypertension or pre-eclampsia, write a care plan that includes all of the following:

- The timing and nature of future fetal monitoring
- Fetal indications for birth and if and when corticosteroids should be given
- When discussion with neonatal paediatricians and obstetric anaesthetists should take place and what decisions should be made.

2.5.4 Women at high risk of pre-eclampsia

Carry out ultrasound fetal growth and amniotic fluid volume assessment and umbilical artery doppler velocimetry starting at between 28 and 30 weeks (or at least 2 weeks before previous gestational age of onset if earlier than 28 weeks) and repeating 4 weeks later in women with previous:

- Severe pre-eclampsia
- Pre-eclampsia that needed birth before 34 weeks
- Pre-eclampsia with a baby whose birth weight was less than the 10th centile
- Intrauterine death
- Placental abruption.

In women who are at high risk of pre-eclampsia, only carry out cardiotocography if fetal activity is abnormal.

3.0 REFERENCES

NICE clinical guideline 107 (August 2010). Hypertension in Pregnancy – The management of hypertensive disorders during pregnancy.

NHS Litigation Authority. Clinical Negligence Scheme for Trusts – Maternity. Clinical Risk Management Standards, version 1, 2013/2014.

4.0 RELATED DOCUMENTS

Guideline No 12 – Pre-Eclampsia and Eclampsia

MONITORING COMPLIANCE WITH THE GUIDELINE	
Minimum requirement to be monitored	Auditable Standards – See below
Process for monitoring	Audit of Guideline
Responsible individual/group/committee	Risk Management Department
Frequency of monitoring	3 yearly
Responsible individual/group/committee for review of results	Obstetric & Gynaecology Audit Meeting
Responsible individual/group/committee for development of action plan	Audit Lead
Responsible individual/group/committee for monitoring of action plan	Clinical Governance Steering Group

COMPLIANT WITH:	
1.	NHSLA Standard 4.3 – Clinical Risk Assessment
2.	NHSLA Standard 5.9 – Postnatal Care
3.	NICE clinical guideline 107 Hypertension in pregnancy - the management of hypertensive disorders during pregnancy. Aug 2010

AUDITABLE STANDARDS	
1.	All women with risk factors for pre-eclampsia should be commenced on low-dose aspirin from 12 weeks until the birth of the baby, unless contra-indicated (4.3)
2.	All women with a hypertensive disorder of pregnancy should have a documented antenatal plan for frequency of monitoring of blood pressure and assessment of proteinuria (4.3)
3	All women with a hypertensive disorder of pregnancy should have a documented plan for the indications for and timing of delivery (4.3)
4.	All women with a hypertensive disorder of pregnancy should have a documented plan of fetal surveillance to assess fetal growth and wellbeing (4.3)
5.	All women with a hypertensive disorder of pregnancy should have a documented post-natal plan for monitoring +/- treatment of raised blood pressure prior to discharge from hospital (5.9)