Aneurin Bevan University Health Board

Hypertension in Pregnancy Guideline

N.B. Staff should be discouraged from printing this document. This is to avoid the risk of out of date printed versions of the document. The Intranet should be referred to for the current version of the document.

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1 Executive Summary

This document is a procedure designed to support safe and effective practice

1.1 Scope of guideline

This guideline applies to all clinicians working within maternity services

1.2 Essential Implementation Criteria

Auditable standards are stated where appropriate

2 Aims

To provide support for clinical decision making

3 Responsibilities

The Maternity Management team

4 Training

Staff are expected to access appropriate training where provided. Training needs will be identified through appraisal and clinical supervision.

5 Monitoring and Effectiveness

Local service Improvement Plan will guide monitoring and effectiveness.

This policy has undergone an equality impact assessment screening process using the toolkit designed by the NHS Centre Equality & Human Rights. Details of the screening process for this policy are available from the policy owner.

6 Appendices

Appendix 1 – Hypertension in Pregnancy Management

7 References

NICE CG 107Hypertension in Pregnancy, August 2010

Introduction

Hypertensive disorders in pregnancy account for one third of maternal morbidity.

There is an increased risk of preterm babies, small for gestational babies and still births associated with hypertensive disorders in pregnancy.
5% of the still births in babies without congenital malformations occurred in women with hypertensive disorders.
The risk of small for gestational age babies in those born preterm is 20-25% and about 14-19% of babies born to women with hypertensive disorders in pregnancy at term were small for gestational age (< 10th centile).

Long term maternal morbidity including risk of chronic hypertension, cardio vascular risks increased in women with Hypertensive disorders in pregnancy.

Appendix 1 Management of Pregnancy with Hypertension

Definitions

- Hypertension : Diastolic BP >90, Systolic BP>140 on two or more occasions
- Chronic Hypertension: Hypertension at booking visit or before 20 wks, or that is being treated at time of referral to maternity
- Gestational Hypertension: New Hypertension presenting after 20 weeks without significant proteinuria
- Pre eclapmsia: New Hypertension presenting after 20 weeks with significant proteinuria
- Significant Proteinuria: protein/creatinine ratio > 30mg/mmol
  >300mg/24 hour urine collection

Abbreviations:

ACE inhibitor –	Angiotensin-converting	**HELLP**	Haemolysis, elevated liver enzymes, low enzyme inhibitor platelets
ARB	Angiotensin 2 receptor blocker	**BP**	Blood pressure
ALT	Alanine aminotransferase	**CTG**	Cardiotocography
DBP	Aiastolic blood pressure	**ANC**	Antenatal clinic

At Booking: Identify risk factors for developing hypertensive disorders in pregnancy

Commence on low dose aspirin (75mgs) from 12 weeks to delivery if ≥ 2 moderate risk factors or 1 high risk factor

Moderate Risk Factors
First pregnancy
Age ≥ 40 years
Pregnancy interval > 10 years
BMI ≥ 35 kg/m2 at first visit
Family history of pre-eclampsia
Multiple pregnancy

High Risk Factors
Hypertensive disease during previous pregnancy
Chronic kidney disease
Autoimmune disease such as
systemic lupus erythematosis or antiphospholipid syndrome
Type 1 or type 2 diabetes
Chronic hypertension

Symptoms of Preeclampsia:

- Severe headache
- Visual disturbances, flashing lights
- Epigastric/ right upper quadrant pain/ vomiting
- Sudden oedema of face, hands or feet

*Women to seek advice from a healthcare professional immediately if they experience any of the above

Haematological investigations for hypertension in pregnancy (PET Bloods):

Liver function tests (transaminases and bilirubin)
Urea and electrolytes (creatinine level)
Full blood count (platelets)
Clotting studies **only** if platelets ≤ 100 × 10^6/l or suspected HELLP syndrome/ Abruption

CHRONIC HYPERTENSION – Hypertension present at booking OR before 20 weeks OR that is being treated at time of referral to maternity services

* Review medication – (ACE/ARBS, chlorothiazide discontinued, alternative antihypertensives commenced as necessary)
* If deranged renal function with proteinuria – refer to renal physicians
* If secondary chronic hypertension- review by physicians
* Dietary advice – encourage lower sodium intake (not salt)

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* Optimise antihypertensives – 1st line labetalol, titrate dose – do not give stat doses
* Aim for BP<150/100, <140/90 if end organ damage, ensure DBP does not drop to <80mmHg
* Community midwife to monitor BP/urine dip for protein weekly
* Follow up in ANC in 2/52 to observe BP control & schedule additional appts based on individual need/ role of joint Medical ANC
* Patient education: symptoms requiring medical consultation – severe headaches, visual disturbances, upper abdominal pain, vaginal bleeding, reduced FM

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* 28-30 & 32-34 weeks – Ultrasound for growth and amniotic fluid volume measurement
  Umbilical artery Doppler velocimetry

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* If BP ≥ 160/110 admit for treatment
* If BP <160/110 offer delivery after 37weeks

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* If no response to antihypertensives review maternal/fetal risks with senior obstetrician
Consider delivery after course of corticosteroids if <36 weeks

Intrapartum care

CHRONIC HYPERTENSION

Mild to Moderate hypertension (140/90 -159/109 mmHg)
* Continue antenatal antihypertensives
* Hourly BP monitoring
* Continue biochemical/haematological monitoring as antenatally

* If BP stable do not routinely limit second stage

Severe (≥160/110 mmHg)
Continue antenatal antihypertensives
*Continual BP monitoring

If BP within target range do not limit second stage
*If BP not responding to antihypertensives advise caesarean section

Postnatal care

* Stop methyldopa within 2 days of delivery
* Day 1-2 – daily BP monitoring, once between day 3-5
As indicated if change in antihypertensive

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* Target BP 140/90: Introduce/ Stop/ Reduce treatment as necessary
* Introduce treatment if BP>150/100
* If chronic hypertension, switch to pre pregnancy medication (ensure safe with breastfeeding)
* If breastfeeding avoid amlodipine/ ARBs/ ACE inhibitors (other than enalapril and captopril)
* Drugs suitable whilst breastfeeding: labetalol, enalapril, captopril, atenolol, metoprolol
* Gestational Hypertension can be continued on labetatol, dose adjusted accordingly

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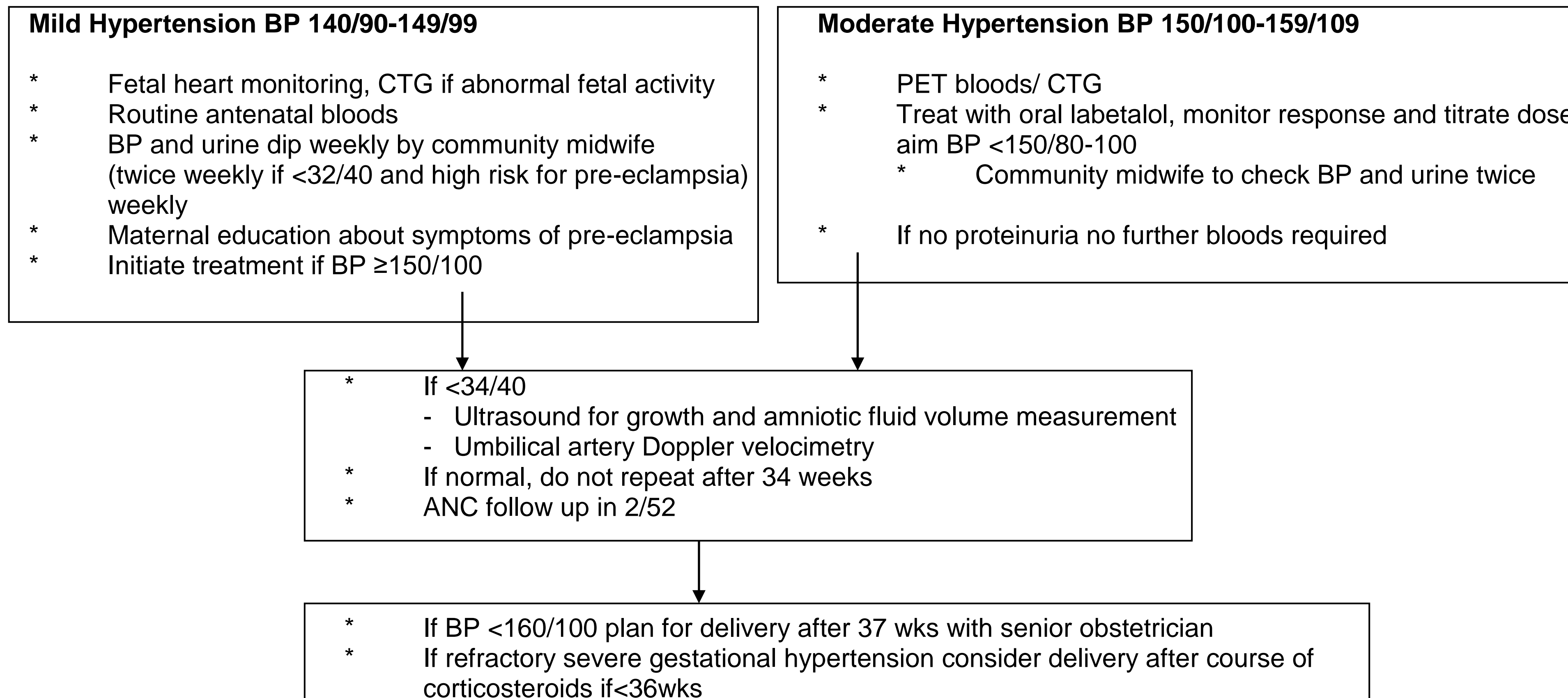
* Make a clear care plan for community care when discharged

Monitor BP every 1-2 days by Community midwife
Advise to reduce medications if BP<130/80, consider reducing medications if BP<140/90
If still needing treatment at 2/52, refer to General Practitioner
If still needing treatment at 6/52, refer to Specialists

GESTATIONAL HYPERTENSION – New Hypertension presenting >20/40 without significant proteinuria



GESTATIONAL HYPERTENSION – New Hypertension presenting >20/40 without significant proteinuria

Severe Hypertension (>160/110)

* **Admit**
* IV access
* Weekly PET bloods
* Weekly CTG – repeat if bleeding, reduced fetal movements, deterioration in maternal condition
* Treat with labetalol to keep BP <150/80-100
* Measure BP 6 hourly at least
* Daily urine dip
* TEDS/ encourage mobility
* Ultrasound for growth, amniotic fluid volume & umbilical artery Doppler velocimetry
* Any abnormalities inform senior obstetrician

If BP controlled over 24 hours < 150/80-100, patient can be referred to community care with

* Antihypertensives
* Twice weekly BP and urine dip & weekly PET bloods with community midwife
* Care plan documented in notes by senior obstetrician wih instructions for
  - -Fetal monitoring – ie weekly CTG, Fortnightly ultrasound for growth/amniotic fluid volume and umbilical artery Doppler
  - -Fetal indicators for delivery
  - -When to consider corticosteroids
  - -When to consult neonatal team
* Follow up ANC in 2/52

Time of Delivery in Chronic/ Gestational Hypertension:

- Do not offer birth to women with BP< 160/110, with or without antihypertensive treatment, before 37 weeks.
- If BP< 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.

Intrapartum care

GESTATIONAL HYPERTENSION

Mild to Moderate hypertension (140/90 -159/109 mmHg)	Severe (≥160/110 mmHg)
*Continue antenatal antihypertensives *Hourly BP monitoring *Continue biochemical/haematological monitoring as antenatally *If BP stable do not routinely limit second stage	*Continue antenatal antihypertensives *Continual BP monitoring *If BP within target range do not limit second stage *If BP not responding to antihypertensives advise caesarean section

Postnatal care

GESTATIONAL HYPERTENSION

* Stop methyldopa within 2 days of delivery
* Day 1-2 – daily BP monitoring, once between day 3-5

↓

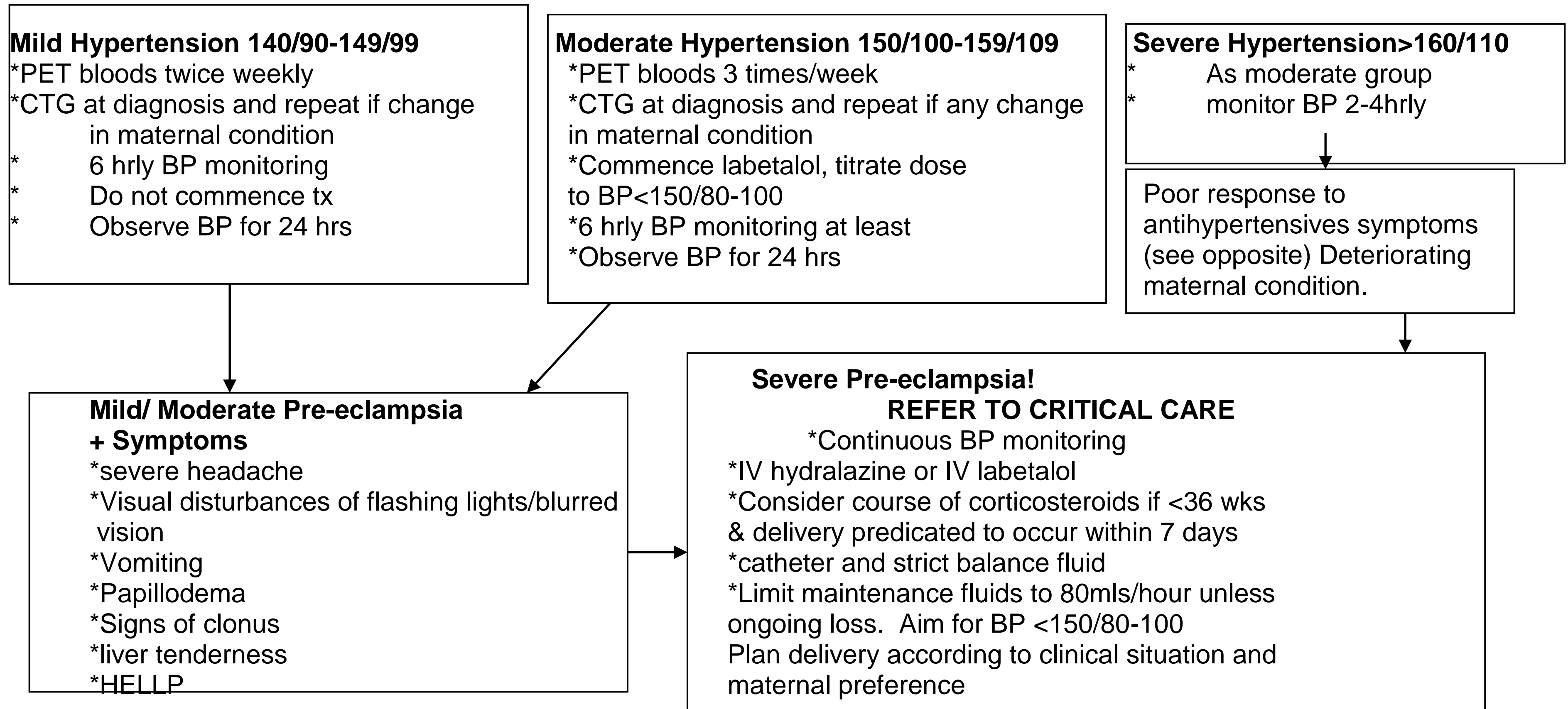
*Target BP 140/90: Introduce/ Stop/ Reduce treatment as necessary
*Introduce treatment if BP>150/100
*If **chronic** hypertension, switch to pre pregnancy medication (ensure safe with breastfeeding)
*If breastfeeding avoid amlodipine/ ARBs/ ACE inhibitors (other than enalapril and captopril)
*Drugs suitable whilst breastfeeding: labetalol, enalapril, captopril, atenolol, metoprolol
*Gestational Hypertension can be continued on labetatol, dose adjusted accordingly

↓

***Make a clear care plan for community care when discharged**
Monitor BP every 1-2 days by community midwife
Advise to reduce medications if BP<130/80, consider reducing medications if BP<140/90
If still needing treatment at 2/52, refer to GP
If still needing treatment at 6/52, refer to Specialists

PRE-ECLAMPSIA – New hypertension after 20 weeks gestation with significant proteinuria (protein/creatinine ratio >30mg/mmol or 300mg on 24 hour urine collection)

ADMIT



Time of delivery in pre-eclampsia

<u><34 weeks</u>

* Conservative management
* Senior obstetrician to document indications for elective birth
  - biochemical/haematological
  - clinical
  - fetal indications

* Plan frequency of fetal monitoring
* Offer delivery if severe refractory hypertension or maternal/fetal indications develop as per care plan, after course of corticosteroids

<u>34-36+6</u>

* Recommend delivery after 34 weeks if severe hypertension, BP controlled and course of steroids complete
* Offer delivery at 34-36 weeks if mild/moderate pre eclampsia depending on maternal/fetal condition, risk factors and availability of neonatal intensive care

<u>>37 weeks</u>

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

Intrapartum Care

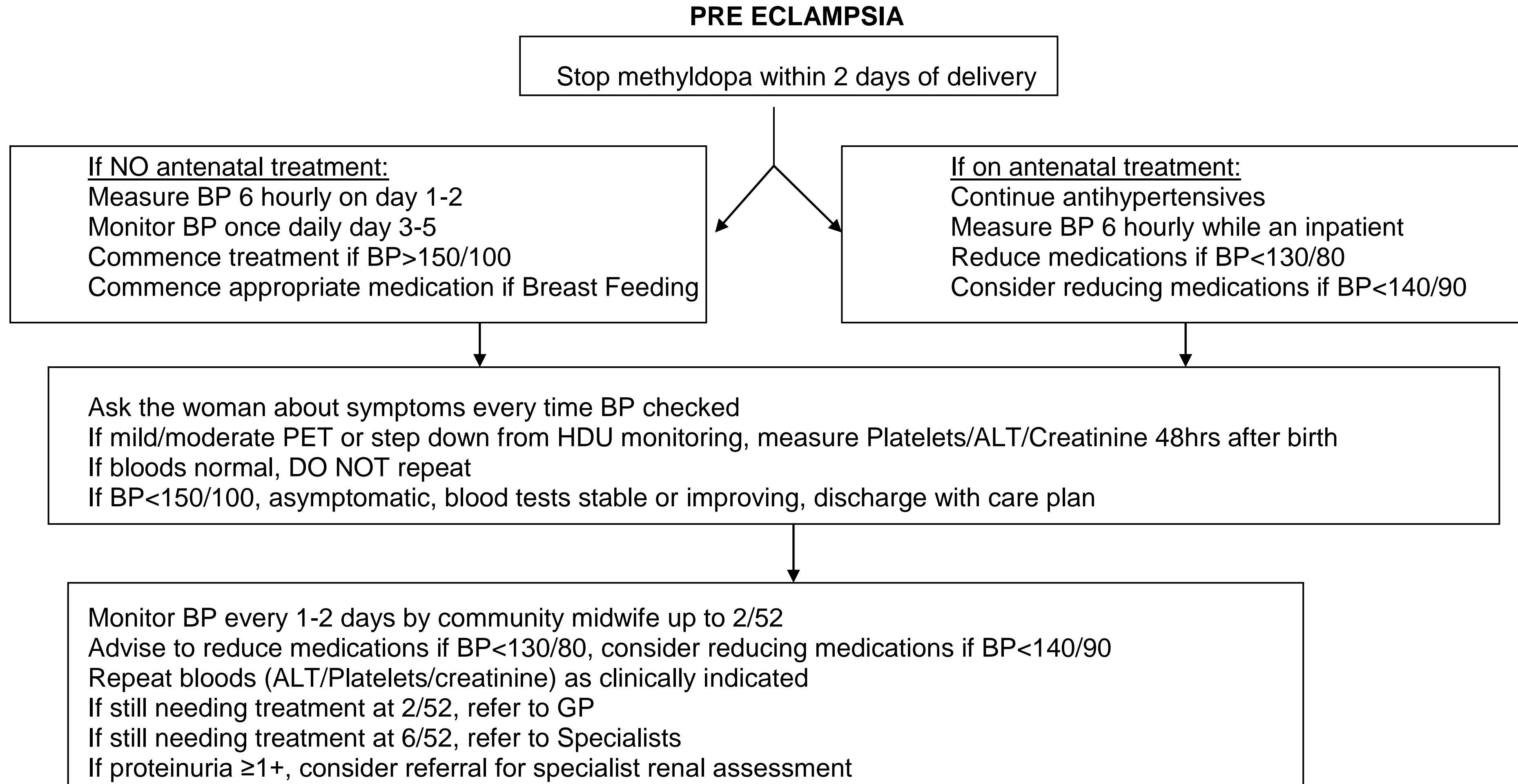
PRE- ECLAMPSIA

<u>Mild to Moderate Hypertension (140/90 -159/109 mmHg)</u>

* Measure BP hourly
* Continue antenatal antihypertensives
* Continue biochemical/haematological monitoring as per antenatal criteria
* Do not routinely limit duration of second stage if BP stable

Severe Pre-eclampsia in labour refer to current LW guidelines

Postnatal Care



Appendix 2 Management of pregnancy with gestational hypertension

Degree of hypertension	Mild hypertension (140/90 to 149/99 mmHg)	Moderate hypertension (150/100 to 159/109 mmHg)	Severe hypertension (160/110 mmHg or higher)
Admit to hospital	No	No	Yes (until BP≤ is 159/109 mmHg)
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 80100 mmHg • systolic blood pressure less than 150 mmHg
Measure BP	Not more than once a week	At least twice a week	At least four times a day
Test for proteinuria	At each visit	At each visit	Daily
Blood tests	Only those for routine antenatal care	Test kidney function, electrolytes, full blood count, transaminases, bilirubin. Do not carry out further blood tests if no proteinuria at subsequent visits	Test at presentation and then monitor weekly: • kidney function, electrolytes, full blood count, transaminases, bilirubin

Appendix 3 Management of pregnancy with pre-eclampsia

Degree of hypertension	**Mild hypertension** **(140/90 to 149/99 mmHg)**	**Moderate hypertension** **(150/100 to 159/109 mmHg)**	**Severe hypertension** **(160/110 mmHg or higher)**
Admit to hospital	Yes	Yes	Yes
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 four times a day	At least four times a day	More than four 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	Monitor using the following tests twice a week: kidney function, electrolytes, full blood count, transaminases, bilirubin	Monitor using the following tests three times a week: kidney function, electrolytes, full blood count, transaminases, bilirubin	Monitor using the following tests three times a week: kidney function, electrolytes, full blood count, transaminases, bilirubin

Appendix: Oral antihypertensive choice in pregnancy

Indication	Drug	Starting dose	Maximum dose	Cautions / Contraindications
First-line	Labetalol	100mg BD	500mg QDS	Asthma
Second-line	Nifedipine	10mg slow-release BD	40mg slow-release BD	
Second-line	Methyldopa	250mg BD	1g TDS	Depression. Avoid postpartum.
Second-line	Hydralazine	25mg TDS	75mg QDS	
Postpartum only	ACE-inhibitorse e.g. enalapril	5mg BD	20mg BD	

Breastfeeding:

- Avoid diuretics in women who are breastfeeding or expressing milk
- No known adverse effect on babies receiving breastmilk: labetalol, nifedipine, enalapril, captopril, atenolol, metoprolol
- Insufficient evidence on safety in babies receiving breastmilk: ARBs, amlodipine, ACE inhibitors other than enalapril and captopril