



Cheshire and Merseyside  
Strategic Clinical Networks

# Regional Guideline for the Management of Pre- Eclampsia

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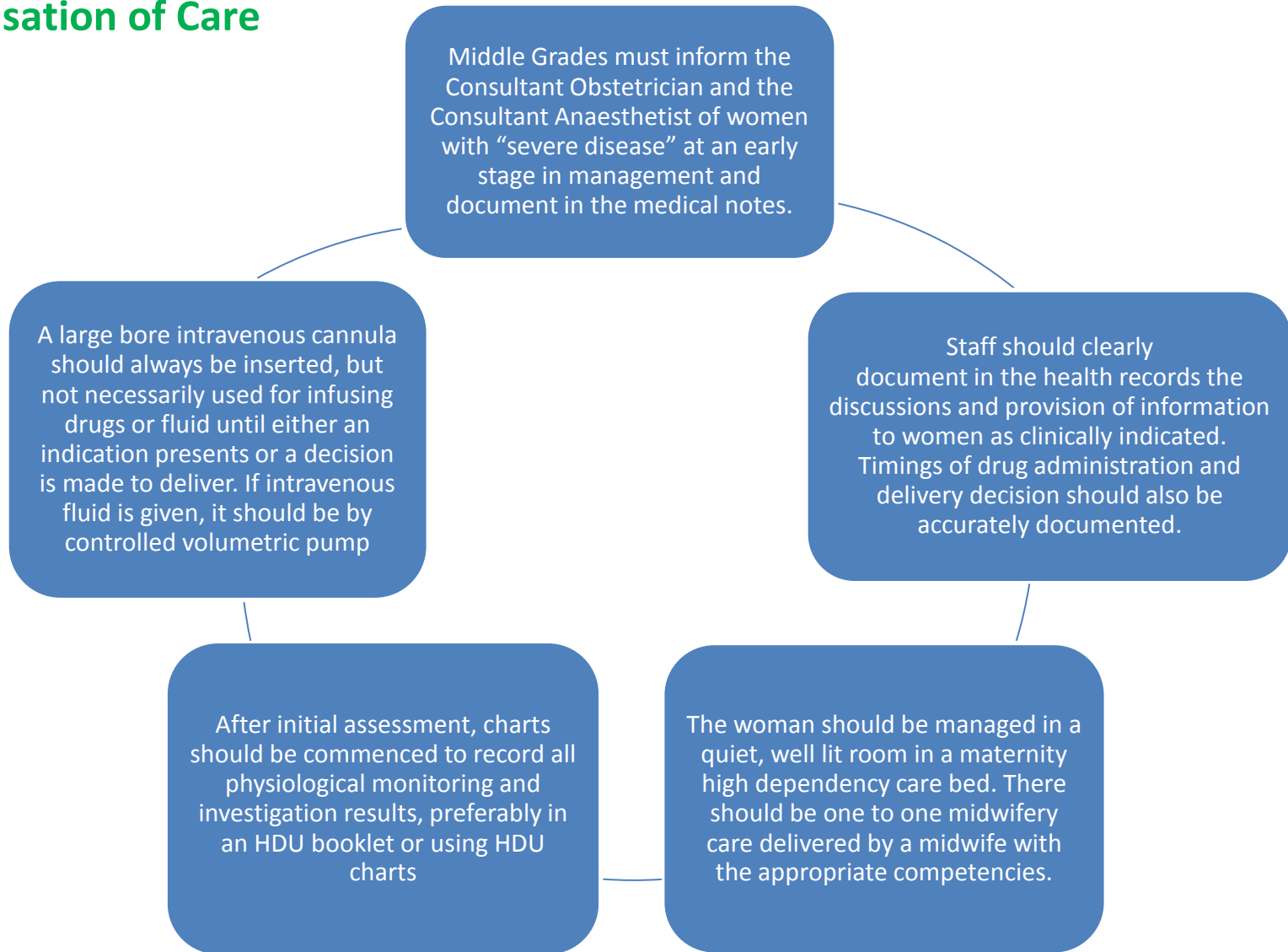
This guideline has been produced by the Acute and Chronic Conditions in Pregnancy Special Interest Group, which is a working group of the Maternity, Children and Young People Strategic Clinical Network in Cheshire and Merseyside.

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# 1. Organisation of Care



## 2. Initial Investigations

### Examination

- Palpate for liver edge and epigastric tenderness
- Assess for clonus (abnormal >2 beats)
- Respiratory rate should be measured and recorded hourly
- Observation on HDU chest medical review if ENS  $\geq 3$  or DBP  $\geq 110$ mmHg
- Oxygen saturation should be measured continuously and charted. If saturation falls below 95% then urgent medical review is essential.
- Assess for hyper-reflexia
- Fluid balance should be monitored
- Temperature should be measured and recorded four hourly
- An indwelling catheter should be inserted and urine output measured hourly whenever intravenous fluids are given.

### BP Assessment

- At least 3 readings to assess trend. Where the reading from the automated device and the manual device differ, the manually device should be used.
- It may be appropriate to consider monitoring blood pressure invasively by having an arterial line inserted and cared for by a practitioner with the relevant competencies.
- Blood pressure and pulse should be measured and recorded every 15 minutes until stabilised and then half hourly.
- When present CVP/arterial lines should be measured continuously and charted with the blood pressure.

### Urinalysis

- Check for proteinuria using an automated reagent-strip reading device
- If > 1+ protein then request PCR; there is no need to repeat the PCR once a diagnosis of preeclampsia is made
- Send MSU to rule out a UTI if clinically indicated

### Blood Tests

- FBC (Hb, WCC, Platelets)
- LFT
- U+E
- Glucose if ALT > 150 (rule out acute fatty liver of pregnancy)
- Blood film to check for haemolysis if HELLP syndrome is suspected on FBC & LFT
- Clotting screen (PT, APPT +/- fibrinogen, FDP's) platelets < 100
- Group and Save serum
- Blood tests should be repeated every 12 hours whilst on the protocol. In the event of haemorrhage more frequent blood tests should be taken. In the presence of /deteriorating haematological/biochemical parameters, more frequent testing may be required.

### Assessment for Fetal Well Being

- Measure SFH
- Fetal movement
- Daily CTG
- Arrange an ultrasound scan for fetal growth, amniotic fluid index and umbilical artery Doppler at diagnosis if not done in last 2 weeks. Discuss with a Consultant if there are abnormalities of growth velocity, liquor or dopplers

### 3. Management of Severe Pre-eclampsia

#### General Measures

- Manage in maternity HDU
- Use maternity HDU chart and MEOWS
- Involve both Consultant Obstetrician & Consultant in Obstetric Anaesthesia
- Consider requesting input from critical care outreach and/or intensive care
- Insert IV cannula
- Intravenous fluid by volumetric pump
- Give Ranitidine 150mg 6 hourly
- Inform Neonatal team if gestation is below 36 weeks
- Discuss Neonatal care in pre-term birth



#### Blood Pressure Target

- Aim for systolic less than 150mmHg
- Reduction of diastolic by 10mmHg to below 100mmHg. Avoid sudden drop in DBP to less than 80mmHg



#### Control of Blood Pressure

- First Line
- Labetalol 200mg orally if can tolerate, before venous access. If no contraindication \*\*
- If no response within 30 minutes or cannot tolerate oral therapy give IV Labetalol
- Labetalol 50mg slow IV over at least 5 minutes
- Repeat Labetalol at 10min intervals if DBP has not reduced as desired. Total maximum dose of Labetalol is 200mg
- Maintenance of Blood Pressure (<150/110 mm HG)
- Following reduction in BP commence Labetalol infusion 5mg per/ml. Rate 4ml/per hour via syringe pump.
- The infusion can be doubled every half hour to a maximum of 32ml (160mg)/hour until BP

\*\* Asthma, overt cardiac failure, severe bradycardia, heart block

## 4. Seizure Prophylaxis

### Loading Dose

- 4g Magnesium Sulphate slow IV over 10mins
- Administer via syringe pump

### Maintenance

- Magnesium Sulphate 1g /hour for 24 hours or until delivered whichever is longer

### Important Observations

- Continuous pulse oximetry
- Hourly urine output
- Hourly respiratory rate
- Five Hourly deep tendon reflexes

### Every 5 hours the following observations

- Biceps reflex present
- Respiratory rate is >12/min
- Urine output >100ml previous 4 hrs; 97% magnesium is excreted in urine; presence of oliguria can lead to toxic levels.

### Side Effects

#### Discontinue magnesium sulphate if:-

- Motor Paralysis
- Absent tendon reflexes
- Respiratory Depression
- Cardiac Arrhythmia

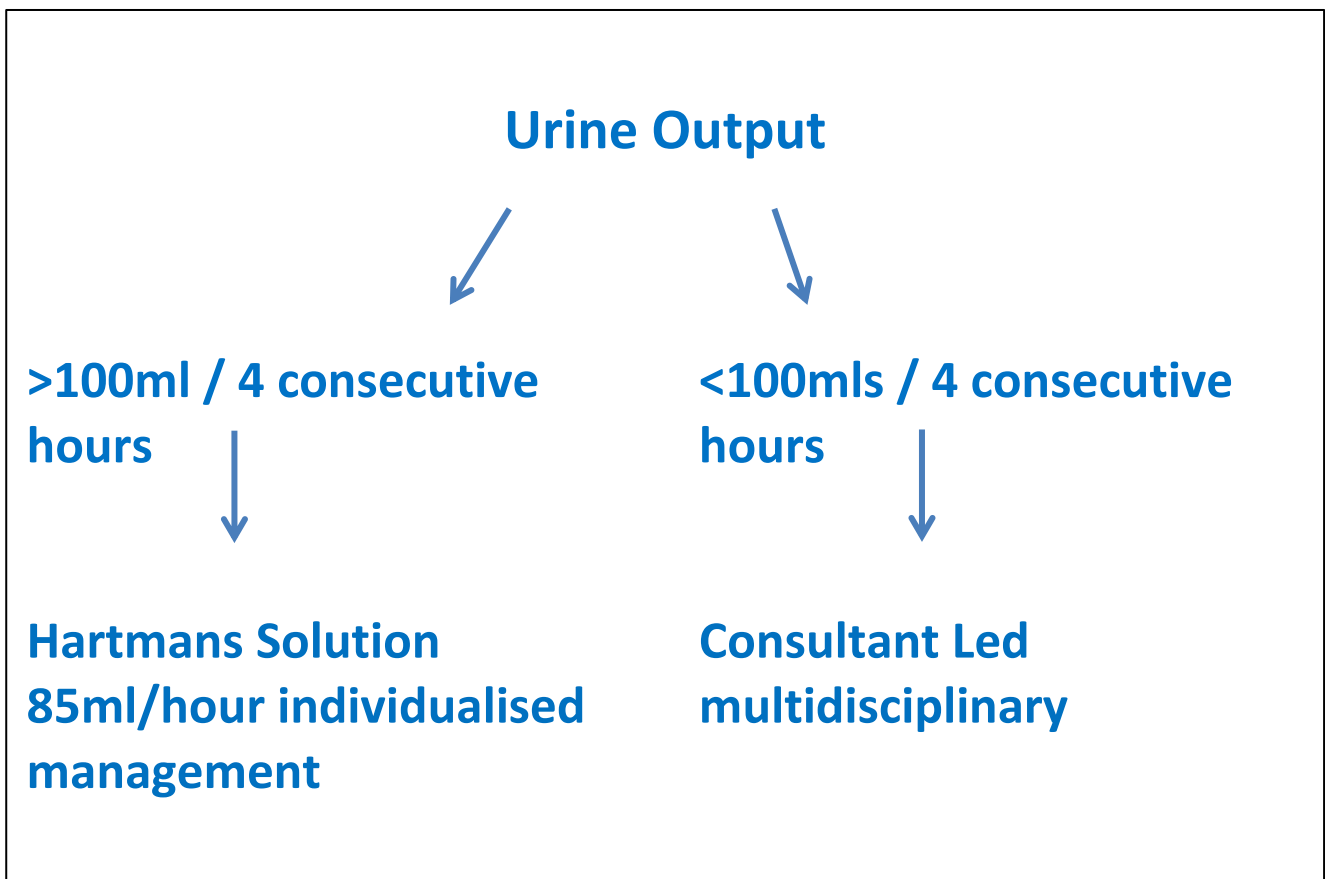
If side effects occur, administer 10ml 10% calcium gluconate IV.

No need to measure Magnesium levels with the above

## 5. Managing Eclampsia including recurrent fits

- Loading dose of Magnesium Sulphate, followed by maintenance infusion
- Pulse Oximetry
- Maternal & Fetal monitoring as described above
- Control Hypertension
- Once stabilised woman should deliver
- Further bolus dose of Magnesium of 2g and increase rate of infusion of Magnesium to 1.5g/hour
- Continue observations and consider the need for ventilation
- Advice from Critical Care and/or critical care outreach.
- Consider other causes of seizures. If necessary organise a CT head scan.

## 6. Fluid Management in Severe Pregnancy induced Hypertension





## 7. Definitions

### Pre-eclampsia

New hypertension presenting with significant proteinuria (protein/creatinine ratio (PCR) of  $\geq 30\text{mg}/\text{mmol}$ ) at or after 20 weeks of pregnancy.

### Severe pre-eclampsia

Pre-eclampsia with severe hypertension and/or with symptoms, and/or biochemical and/or haematological impairment.

Some patients may have very significant proteinuria without any other signs of PET. Women with significant proteinuria (3+ or greater) may need admission for thorough assessment. Women may have, or be developing, significant renal disease (e.g. nephrotic syndrome). They are also at risk of developing PET and other pregnancy complications.

### Eclampsia

Eclampsia is the presence of tonic clonic convulsions occurring in association with features of PET, but the diagnosis of PET may only be possible in retrospect. If the patient having a convulsion has already been diagnosed as having any degree of PET, then she should be managed as described in these guidelines. If a woman presents with seizures after 20 weeks gestation in whom PET has not been already diagnosed, eclampsia should be assumed to be the cause of the seizure unless there is clear reason to suppose otherwise (e.g. a history of poorly controlled epilepsy, traumatic head injury). Effective communication is recognised as being central to promoting patient safety and reducing the number of serious clinical incidents. Communication between midwifery, obstetric, paediatrics and anaesthetic staff all levels of seniority is essential in the provision of a safe clinical service.

### Classification for severity of hypertension

- Severe – BP  $\geq 160/110\text{mmHg}$
- Moderate - BP between 150/100 and 159/109mmHg
- Mild - BP between 140/90 and 149/99mmHg

### Symptoms of Pre-eclampsia

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

## 8. Indicators of Severe Disease

The following are indicators of severe disease and justify close assessment and monitoring.

- Eclampsia
- Severe Hypertension: Systolic Blood pressure over 160mmHg( average of 3 readings over 15 mins) with at least 1+ Proteinuria
- Moderate Hypertension: Systolic Blood pressure over 140/mmHg and/or Diastolic Blood pressure over 90 mmHg with significant Proteinuria\* and any of:
  1. Severe headache with visual disturbance
  2. Epigastric pain
  3. Signs of clonus
  4. Liver tenderness
  5. Platelet count falling to below  $100 \times 10^9/l$
  6. Alanine amino transferase rising to above 50IU/l
  7. Creatinine  $>100\text{mmol}$

\*At least “++” proteinuria, PCR  $\geq 30\text{mg}/\text{mmol}$ , 0.3g in 24 hours

These would not necessarily lead to delivery but assuming a correct diagnosis it is likely that maternal parameters will not improve until after delivery.

These are also not the only entry requirements.

## 9. Managing Severe Pre-eclampsia

### General measures

1. The woman should be managed in HDU in a quiet, well-lit room with one-to-one midwifery care.
2. After initial assessment, 24-hour charts should be commenced to record all physiological monitoring and investigation results. A new chart should not be started until the previous one has a full 24-hour assessment. All treatments should be recorded and signed. The Modified Early Warning Score should be used in conjunction with the charts.
3. The Consultant Obstetrician and the Consultant Anaesthetist should be involved at an early stage.
4. When oral drug treatment is possible, it should be the route of choice.
5. An intravenous cannula should always be inserted, but not necessarily used for infusing drugs or fluid.
6. If intravenous fluid is given, it should be controlled by a volumetric pump.
7. Ranitidine 150mg 6 hourly due to the increased risk of caesarean section.
8. Inform the neonatal team if the gestation is below 36 weeks.

### Basic investigations

9. Blood should be sent for FBC, U&E, LFT, Clotting and group and save. These should be checked daily or more frequently if any abnormality found or if patient deteriorates clinically.
10. Intravenous access is required for all women with PET during labour and delivery.
11. Blood pressure and pulse should be measured each 15 minutes for a minimum of four hours until stabilized and then half hourly. The correct size of NIBP cuff must be selected to ensure accurate BP readings. An appropriate blood pressure monitor should be used.
12. Initially check BP manually and compare to automated readings, as there can be a difference between the two. Then when using an automated NIBP machine, take the difference into account – remember you are observing for trends.
13. An indwelling urinary catheter should be inserted and urine output measured hourly.
14. Oxygen saturation should be measured continuously and charted ½ hourly (together with the amount of any supplemental oxygen). If saturation falls below 95% then medical review is essential.

15. Fluid balance should be monitored very carefully. Detailed Input and Output recordings should be charted.
16. Respiratory rate should be measured hourly.
17. Temperature should be measured four hourly or whenever patient complains of feeling hot.
18. When used arterial BP/CVP should be measured continuously and charted with the blood pressure.
19. Fetal wellbeing must be assessed carefully. In the initial stages this will be with a cardiotocograph but consideration should be given to assessing the fetus with a growth scan, liquor assessment and umbilical artery Doppler flow velocity waveform.
20. Any signs of fetal compromise should be discussed with a consultant obstetrician.

## Control of blood pressure

21. As a guide, a goal for stabilisation of blood pressure should be to reduce:
  - The systolic blood pressure to below 150 to reduce the risk of intracranial haemorrhage and aortic dissection;
  - The diastolic blood pressure by 10mmHg and to below 100mmHg. It is very important to avoid sudden drop in DBP to below 80 as this may lead to underperfusion of the vital organs including the uteroplacental unit. This could precipitate fetal distress therefore continuous monitoring is necessary.
22. The Centre of Maternal and Child Enquiries CEMACE report from the triennium 2006 to 2008 emphasizes that systolic blood pressures of 150 mmHg, or above, require effective antihypertensive treatment.
23. If the systolic pressure is very high, >180 mmHg, this is a medical emergency that requires urgent as well as effective antihypertensive treatment.
24. There is little evidence of any benefit associated with any individual drug regimen.
25. The priority is to lower the dangerously high systolic pressure. The following antihypertensives can be used:

## Labetalol

- a. If the woman can tolerate oral therapy an initial 200mg oral dose can be given. This dose can be given immediately before venous access and so can achieve as quick a result as an initial intravenous dose. This should lead to a reduction in blood pressure in about half an hour.
- b. If there is no initial response to oral therapy or if it cannot be tolerated control should be by repeated intravenous bolus of labetalol followed by a labetalol infusion.
- c. Bolus infusion is 50mg (= 10ml of labetalol 5mg/ml) given over at least 5 minutes. This should have an effect by 5 minutes and should be repeated if diastolic blood pressure has not been reduced in around 10 minutes. This can be repeated to a maximum dose of 200mg. The pulse rate should remain over 60 beats per minute.
- d. Following this or as initial treatment in moderate hypertension a labetalol infusion should be commenced. An infusion of (neat) labetalol 5mg/ml at a rate of 4ml/hour via a syringe pump should be started. The infusion rate should be doubled every half-hour to a maximum of 32ml (160mg)/ hour until the blood pressure has dropped and then stabilized at an acceptable level. This level will vary between women.

## Nifedipine

- e. If labetalol is contraindicated, fails to control the blood pressure after one or two stat doses of Labetalol, then Nifedipine is an alternative agent. Nifedipine may also be used if there is a rising blood pressure despite a maximum infusion of labetalol.

This is given as a 10mg oral tablet (not a slow-release tablet). If it controls blood pressure it should be repeated 6 hourly initially though may be changed post-natally to a slow release preparation which lasts 12 hours. Blood pressure should be measured every 10 minutes in the first half-hour after treatment as often there can be a very marked drop in pressure.

If BP remains persistently high even after 2<sup>nd</sup> line agents, discuss with intensivists

## Antenatal Fluid Management

26. Careful fluid balance is aimed at avoiding fluid overload. Total intravenous input should be limited to 80ml/hour (approximately 1ml/kg/hr).
27. If Syntocinon is used it should be at high concentration and the volume of fluid included in the total input. Oliguria at this point should not precipitate any specific intervention except to encourage early delivery.
28. As these women are at high risk of caesarean section oral fluids should also be limited to 30ml per hour or less (as part of the 80ml/hour).

## Delivery Guidelines

### *“Planned delivery on the best day in the best way”*

29. The delivery should be well planned, done on the best day, performed in the best place, by the best route and with the best support team. Timing affects the outcome for both mother and baby.
30. If the mother is unstable then delivery is inappropriate and increases risk. Once stabilized with antihypertensive drugs and Magnesium Sulphate then a decision should be made.
31. In the absence of convulsions, prolonging the pregnancy may be possible to improve the outcome of a premature fetus, but only if the mother remains stable. Continued close monitoring of mother and baby is needed. It seems ideal to achieve delivery, particularly of premature infants, during normal working hours. H2 antagonists should be given as per local guidelines.
32. Even a few hours may be helpful if it allows the neonatal unit to be more organized or to transfer a mother to a place where a cot is available, assuming the mother is stable before transfer (see stabilization section).
33. If the pregnancy can be prolonged in excess of 48 hours, steroids help mature the fetal lungs. However, even if delivery is planned for within 24 hours, steroids may be of benefit and should be given. (GA <36 weeks)
34. Since the benefits to the fetus peak between 48 hours and 6 days then after 48 hours further consideration should be given to delivery as further delay may not be advantageous to the baby or mother. In all situations a planned elective delivery suiting all professionals is appropriate.
35. Delivery is not necessarily by Caesarean section but if gestation is under 32 weeks it is preferable.
36. After 34 weeks vaginal delivery should be considered in a cephalic presentation. The mode of delivery should be discussed with the Consultant Obstetrician. Vaginal prostaglandins will increase the chance of success. Anti-hypertensive treatment should be continued throughout assessment and labour.
37. If vaginal delivery is planned then the second stage should be short with consideration given to elective operative vaginal delivery. An epidural will normally be used.
38. The third stage should be managed with 5 units of i.v. SYNTOCINON. Ergometrine or syntometrine should not be given in any form (because of their effect on raising blood pressure).

## Anaesthesia and Fluids

39. Genuine pre-eclamptics tend to maintain their blood pressure, despite regional blockade. When this happens, fluid load is unnecessary and may complicate fluid balance. For this reason, fluid loading in pre-eclampsia should always be controlled and should never be done prophylactically or routinely.
40. Hypotension, when it occurs, can be easily controlled with very small doses of ephedrine.
41. In women with pre-eclampsia fluid requirements at caesarean section should be carefully considered and use of more than 500mls of fluid, unless to replace blood loss, should be exceptional.
42. General Anaesthesia can add to the risks of delivery since intubation and extubation can lead to increases in systolic and diastolic blood pressure, as well as heart rate, so should be avoided where possible.

## Arterial Line Insertion

43. Invasive blood pressure monitoring may aid intravenous antihypertensive therapy. An intra-arterial pressure monitor may be indicated if:
  - The woman is unstable
  - The blood pressure is very high
  - The woman is obese, when non-invasive measurements are unreliable
  - There is a haemorrhage of >1000 mls

## Indications for Central Venous Pressure Monitoring

44. CVP lines can be misleading in women with pre-eclampsia as they often have a constricted vasculature with altered venous pressures which do not accurately reflect intravascular fluid status.
45. However, a CVP line may be indicated if blood loss is excessive:
  - Particularly at Caesarean section
  - Or if delivery is complicated by other factors such as abruptio placentae.

## Magnesium Sulphate Prophylaxis

46. The risk of severe pre-eclampsia progressing to eclampsia is reduced by more than 50% by the use of prophylactic magnesium sulphate.
47. NO other agents are appropriate for prophylaxis.
48. THERE IS NO NEED TO MEASURE MAGNESIUM LEVELS WITH THE ABOVE PROTOCOL.
49. Magnesium sulphate is given as a loading dose followed by a continuous infusion for 24 hours or until 24 hours after delivery - whichever is the later.

- Loading dose: - Magnesium sulphate 4g Administer via a syringe pump over 10 minutes Use 20ml syringe.
- 4 ampoules of 50% Magnesium Sulphate = 8ml and 12 ml sterile water  
Give at 2.5 ml/min
- Maintenance dose: - Magnesium sulphate at 1g / hour. Make 10g of MgSO<sub>4</sub> (5 x 2G ampoules) up to 50ml with sterile water.

50. Use 50ml syringe driver run at 5ml/hr.

51. The following important observations should be performed:-

- Continuous pulse oximetry
- Hourly urine output
- Hourly respiratory rate
- Hourly deep tendon reflexes

52. Every 5 hours the following observations should take place:-

- The patellar reflex is present.
- The respiratory rate is > 12/min.
- The urine output is greater than 100ml in the previous 4 hours; 97% of magnesium is excreted in the urine and therefore the presence of oliguria can lead to toxic levels.

53. If the above criteria are not met then further administration of magnesium sulphate should be withheld. If magnesium is not being excreted then the levels should not fall and no other anticonvulsant is needed. Magnesium should be re-introduced if urine output improves.

54. Side effects: Motor paralysis, absent tendon reflexes, respiratory depression and Cardiac arrhythmia (increased conduction time) can all occur but will be at a minimum if Magnesium is administered slowly and the patient observed as above.

If severe side effects do occur: The antidote is 10ml 10% calcium gluconate given slowly intravenously. There is no need to measure Magnesium levels with the above.



## 10. Managing Eclampsia

1. Call 2222 and request the Consultant Obstetrician, obstetric registrar and SHO, anaesthetic registrar if not immediately available and remember **ABC**.
2. Give the loading dose of Magnesium Sulphate 4g over 5-10 minutes intravenously and start an infusion of Magnesium Sulphate (see above).
3. If fitting has not ceased give Diazepam 5-10 mg intravenously.
4. Oximetry should be instituted if not already in place.
5. Institute maternal and fetal monitoring as described above.
6. Control any hypertension and manage according to these guidelines.
7. Once stabilised the woman should be delivered.
8. As soon as possible after the event, an Incident Report Form should be completed and submitted. The Delivery Suite coordinator and the consultant Obstetrician jointly have responsibility for ensuring that this is done.

### Magnesium Sulphate Protocol

9. Magnesium sulphate is given as a loading dose followed by a continuous infusion for 24 hours or until 24 hours after delivery - whichever is the later. Loading dose: - 4g magnesium sulphate IV over 5 -10 minutes followed by 1gm/hour infusion

### Management of Recurrent Fits

10. Give a further bolus dose of Magnesium of 2g and increase the rate of infusion of Magnesium to 1.5g / hour. Send blood for magnesium levels aiming for a level of 1.97-3.28 mmol/l (4.8-8.4mg/dl)
11. Continue observations and consider the need for ventilation.
12. If two such boluses do not control seizures, then other methods should be instituted such as the administration of conventional anticonvulsants. Advice may need to be sought from the Medical Registrar on an appropriate drug of choice.
13. It is essential to consider other causes of seizures. It may be appropriate to organise a CT scan when the woman is stabilised.

## 11. Post-partum Fluid Management

1. Following delivery the woman should be fluid restricted in order to wait for the natural diuresis which usually occurs sometime around 36-48 hours post-delivery.
2. The total intravenous and oral fluids should be given at 80 ml/hr: Hartmanns solution or equivalent plus other infusions of drugs e.g. magnesium and labetalol infusions.
3. Fluid restriction will usually be continued for the duration of MgSO<sub>4</sub> treatment; however increased fluid intake may be allowed by a consultant obstetrician at an earlier time point in the presence of significant diuresis.
4. Oral fluids should be restricted, particularly prior to the diuresis at 36-48 hours.
5. Once tolerating more than 80ml/hour oral fluids iv fluids can be stopped.
6. Urine output should be recorded hourly and each 4-hour block should be totalled and recorded on the chart. Each 4-hour block should total in excess of 80 ml.
7. If two consecutive blocks fail to achieve 80 ml then get Consultant multidisciplinary input.

## 12. Special Problems

1. If persisting oliguria requiring fluid challenge or furosemide occurs then the electrolytes need to be carefully assessed and checked six hourly.
2. If there is concern over a rising creatinine and or potassium the case should be discussed with a Renal Physician or a member of the regional panel.
3. If the woman has falling oxygen saturation, this is most likely to be due to fluid overload. Input and output should be assessed together with either clinical or invasive assessment of the fluid balance. However the most appropriate treatment is likely to be furosemide and oxygen.
4. If there is no diuresis and the oxygen saturation does not rise then renal referral should be considered.
5. Cases requiring large volumes of colloid such as fresh frozen plasma, blood or platelets can lead to fluid overload.
6. Significant haemorrhage or HELLP needs to be managed by someone with plenty of experience. It is never difficult putting more fluid in, but getting it out can be a real problem.

## 13. Postnatal Care

1. Women who have received treatment for severe pre-eclampsia should be monitored in hospital until at least the 3rd postnatal day and have 4 hourly blood pressure measurements.
2. It is important to anticipate the need for antihypertensives in order to avoid delaying discharge and to prevent severe hypertension. Prescribe oral antihypertensives to begin if BP > 150/100 on two occasions 30 minutes apart.
3. Beta blockers (eg. Atenolol, labetalol), alpha-adrenergic blockers (eg. doxazosin), angiotensin converting enzyme (ACE) inhibitors (enalapril, captopril) and calcium antagonists (eg. nifedipine, amlodipine) are all safe to use in a woman who is breast feeding.
4. Diuretic treatment is safe but should be avoided in breastfeeding women.
5. Methyldopa should not be prescribed postnatally.
6. After day 3-4 women may be discharged when asymptomatic, provided the haematology and biochemistry results are normal or improving and the blood pressure is < 150/100.
7. Those on treatment should have follow up arranged either for their GP or for a hospital clinic or DAU within 2 weeks.
8. There should be direct communication with the GP via a phone call or discharge note or via the community midwife. This should include:
  - Who will provide follow-up care, including medical review if needed (GP or secondary care)
  - Frequency of blood pressure monitoring
  - Thresholds for reducing or stopping treatment (e.g. BP130/80 reduce treatment, <120/70 stop treatment)
  - Indications for referral to primary care for blood pressure review
  - Measure BP every 1–2 days for up to 2 weeks after transfer to community care, until antihypertensive treatment stopped and no hypertension
9. After pre-eclampsia, blood pressure can take up to 3 months to return to normal. During this time, blood pressure should not be allowed to exceed 160/110 mmHg.
10. All patients with severe pre-eclampsia who remain hypertensive or proteinuria >1+ should be offered a hospital appointment 6-8 weeks post-delivery.
11. Blood pressure and proteinuria assessment should be carried out at this appointment and appropriate referral made if antihypertensive treatment is still required and/or significant proteinuria confirmed.
12. Post natal review should allow an opportunity for a full debriefing of the events surrounding delivery, a review of ongoing antihypertensive treatment and any further investigations or medical referral which may be necessary.

13. An opportunity for pre-conceptual counselling should also be available for these patients:-

- Severe early onset of pre-eclampsia (<34 weeks)
- HELLP Syndrome
- IUGR
- Persistent hypertension requiring antihypertensives or > 1+ proteinuria 6-8weeks Postnatally

## 14. Stabilisation for Transfer

1. When the woman requires delivery, transfer for fetal reasons is often considered. However, ex-utero transfer may be more appropriate. Minimum requirements before transfer:
  - a. When the woman is ventilated it is important to ensure ventilatory requirements are stable and oxygen saturations are being maintained.
  - b. Blood pressure stabilised at <160/105.
  - c. Appropriate personnel are available: at least a senior midwife and an Anaesthetist if the woman is ventilated.
  - d. All basic investigations should have been performed and the results clearly recorded in the accompanying notes or telephone through.
  - e. Fetal well-being has been assessed to be certain that transfer is in the fetal interest before delivery. Steroids should be given if the woman is pre-term.
  - f. Transfer has been discussed with appropriate Consultant medical staff and all the relevant people at the receiving unit e.g. the neonatal unit and neonatal medical staff, the resident obstetrician, the midwife in charge of delivery suite, intensive care and the intensive care anaesthetist (where appropriate).

## 15. Follow up

1. Patients with severe PET or eclampsia will need review and some de-briefing after delivery.
2. Usually patients do not need post-natal follow up in outpatients.
3. If the patient has a prolonged illness after delivery or has had any atypical symptoms, then she should be discussed with her consultant to decide if follow up or onward referral is needed.
4. If a woman had proteinuria throughout the antenatal period, then follow up should be arranged for about 6 weeks postpartum to ensure that renal function and blood pressure have resolved and there is no evidence of underlying renal disease.
5. Follow up can be arranged within the maternity service but equally can be with the GP.
6. **All cases of severe pre-eclampsia should be subject to a Multidisciplinary Case Review.**