Pre-eclampsia and eclampsia

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Key lea rning points

- To manage an eclamptic fit effectively, including drug
- administration.
- **To understand the care and monitoring of a woman being**
- treated with magnesium sulphate.
- **To understand the risk factors and recognise the signs and**
- symptoms of severe pre-eclampsia.
- **To understand the potential complications of severe**
- hypertension, and to become familiar with the equipment
- and medication used in the management of severe
- hypertension .
- **The importance of detailed contemporaneous**
- Documentation.

Common difficulties observed in training drills

- Not calling for help.
- Not stating the problem clearly.
- Not performing basic resuscitation.
- Incorrect administration and labelling of magnesium sulphate.
- Failure to restrict fluids.
- Failure to stabilise the woman before delivery.

Introduction

Pre-eclampsia

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Maternal Complications 0f pre-eclampcy

- **Placental abruption**
- **HEllLP syndrome (characterised by haemolysis, elevated liver enzymes** and low platelets)
- **Disseminated intravascular coagulation**
- **Renal failure**
- **Intracranial haemorrhage**
- **Eclampsia**
- **Coma**
- Acute respiratory arrest

Predisposing risk factors for pre-eclampsia

- **N ulliparity**
- Essential **hypertension**
- **Diabetes**
- **Multiple pregnancy**
- **Maternal age (extremes of maternal age)**
- **Previous pre-eclampsia**
- **Family history of pre-eclampsia**

Eclampsia

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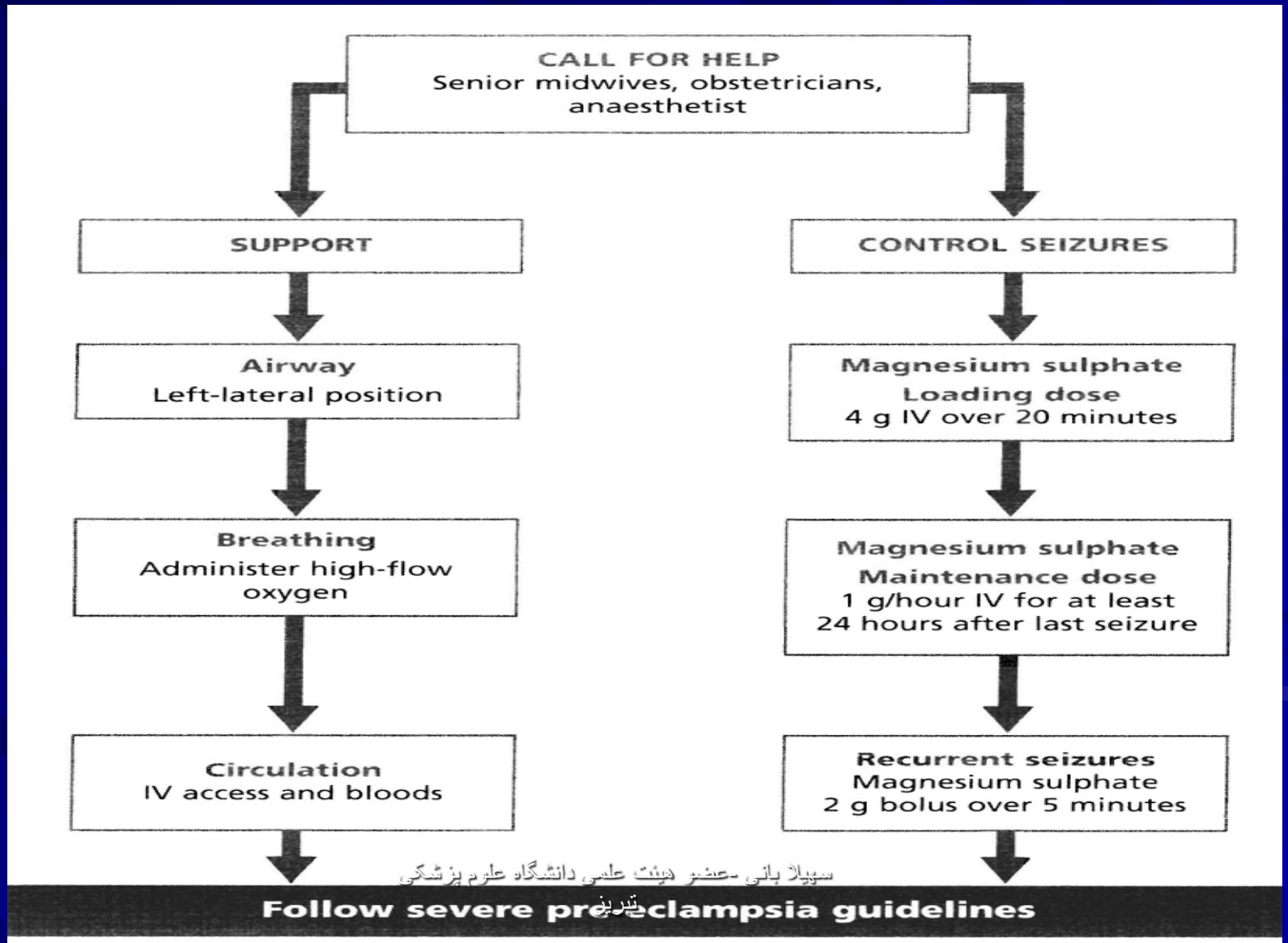
Managenlent of eclampsia



Eclampsia box

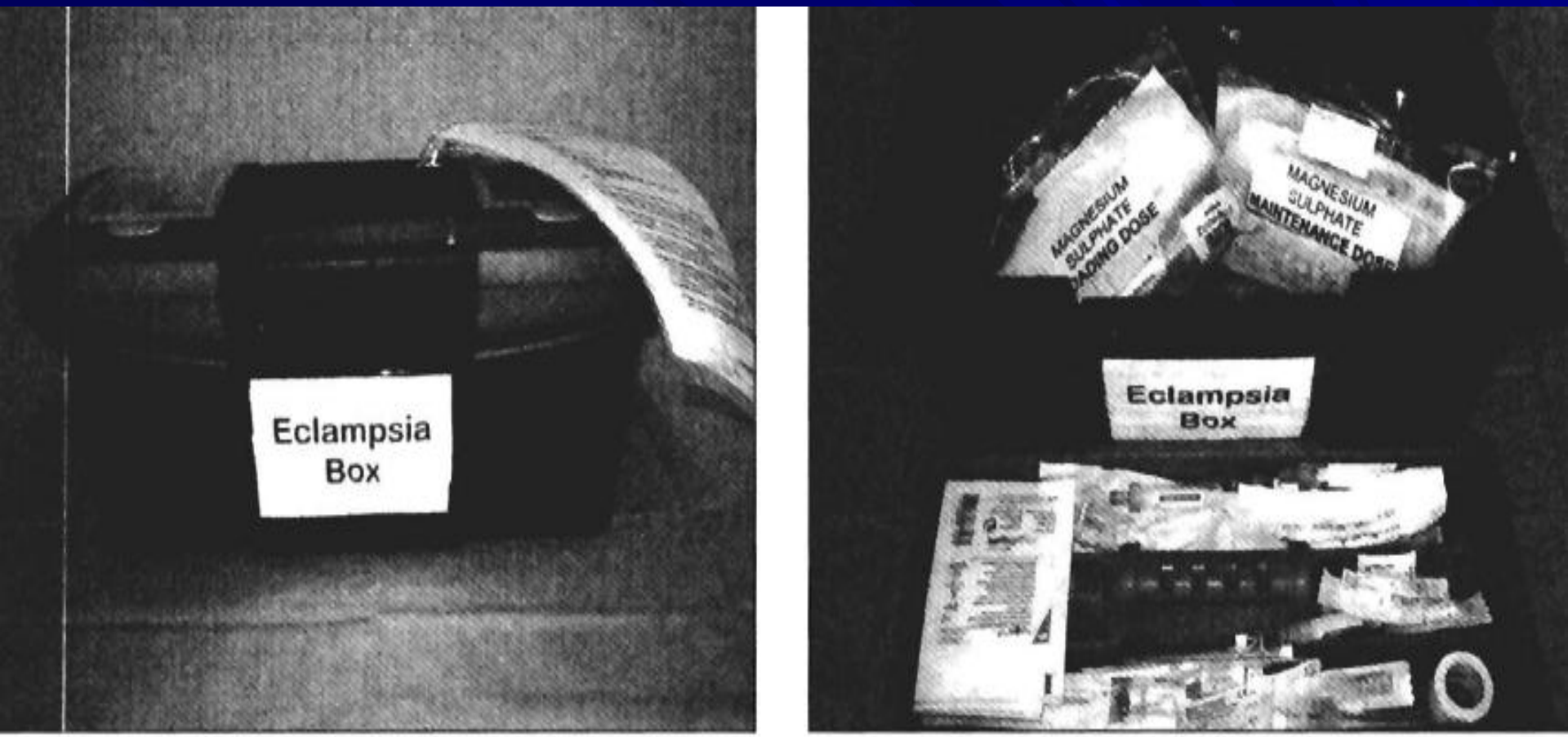


Figure 3.2 Eclampsia box with laminated treatment algorithm attached and showing contents

Control of seizures

Site a large bore intravenous cannula and take bloods for full blood count,urea and electrolytes, liver function tests, clotting and group and save. tarttreatment with magnesium sulphate.

Magne sium Sulphate emergency Protocol

Loading dose: 4 g magnesium sulphate over 20 minutes

- Draw up 8 ml of 50% magnesium sulphate solution (4 g) followed by 12 ml of 0.9% saline (physiological) into a 50-ml syringe.
- This will give a total volume of 20 ml.
- Place the syringe into a syringe driver and run it at 60 ml/hour.
- The IV infusion will run in over 20 minutes.

Maintenance dose: 1 g/hour

- Draw up 20 ml of 50% magnesium sulphate solution (10 g) followed by 30 ml of 0.9% saline into a 50-ml syringe.
- This will give a total volume of 50 ml.
- Place the syringe into a syringe driver and run it at 5 ml/hour.

Remember to reduce the infusion rate when changing from the loading dose to the maintenance dose.

- Continue infusion for 24 hours following the last seizure.

Recurrent seizures while on magnesium sulphate

- Seek immediate senior help.
- Draw up 4 ml of 50% magnesium sulphate solution (2 g) followed by 6 ml of 0.9% saline into a 10-ml syringe.
- This will give a total volume of 10 ml.
- Give as an IV bolus over 5 minutes.
- If possible, take blood for magnesium level prior to giving the bolus dose.

The maternal condition should always take precedence over the fetal condition.
The mother should be stabilised before delivery.

CARDIOPULMONARY ARREST ON MAGNESIUM SULPHATE

- Stop magnesium sulphate infusion
- Start basic life support
- It Give 1 g calcium gluconate IV (10 ml of 10% solution) over 10 Minutes
- Intubate early and ventilate until respiration resumes

Severe pre-ecLampsia Management guidelines

- **Severe proteinuric pre-eclampsia where the decision to deliver has been made: criteria for administering prophylactic magnesium sulphate**
- • Hypertension ≥*160/110 mmHg and protein ~* **+++**
- • Hypertension ≥*150/100 mmHg with proteinuria (≥ 0.3 glday or ≥++)*
- and at least one of the following:
- headache, visual disturbance, epigastric pain
- clonus ≥ three beats
- platelet count < 100 x *10 /L*
- ALT (alanine aminotransferase) > 50 iu/L
- creatinine> 100 micromolll or creatinine clearance < 80 ml/minute.

Management principles

- 1. Stabilise
- 2.Monitor
- 3.Deliver

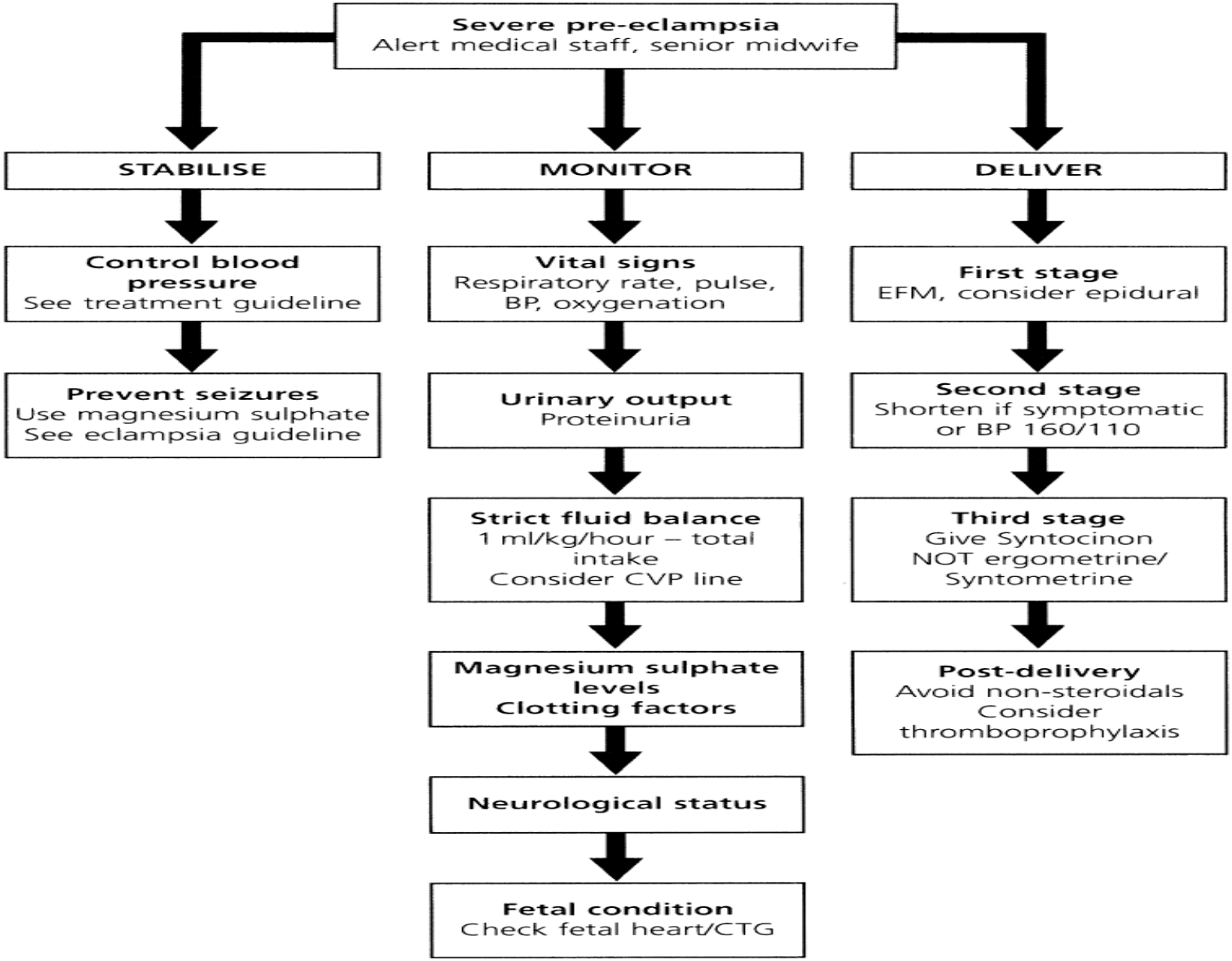


Figure 3.3 Outline of the management of severe pre-eclampsia

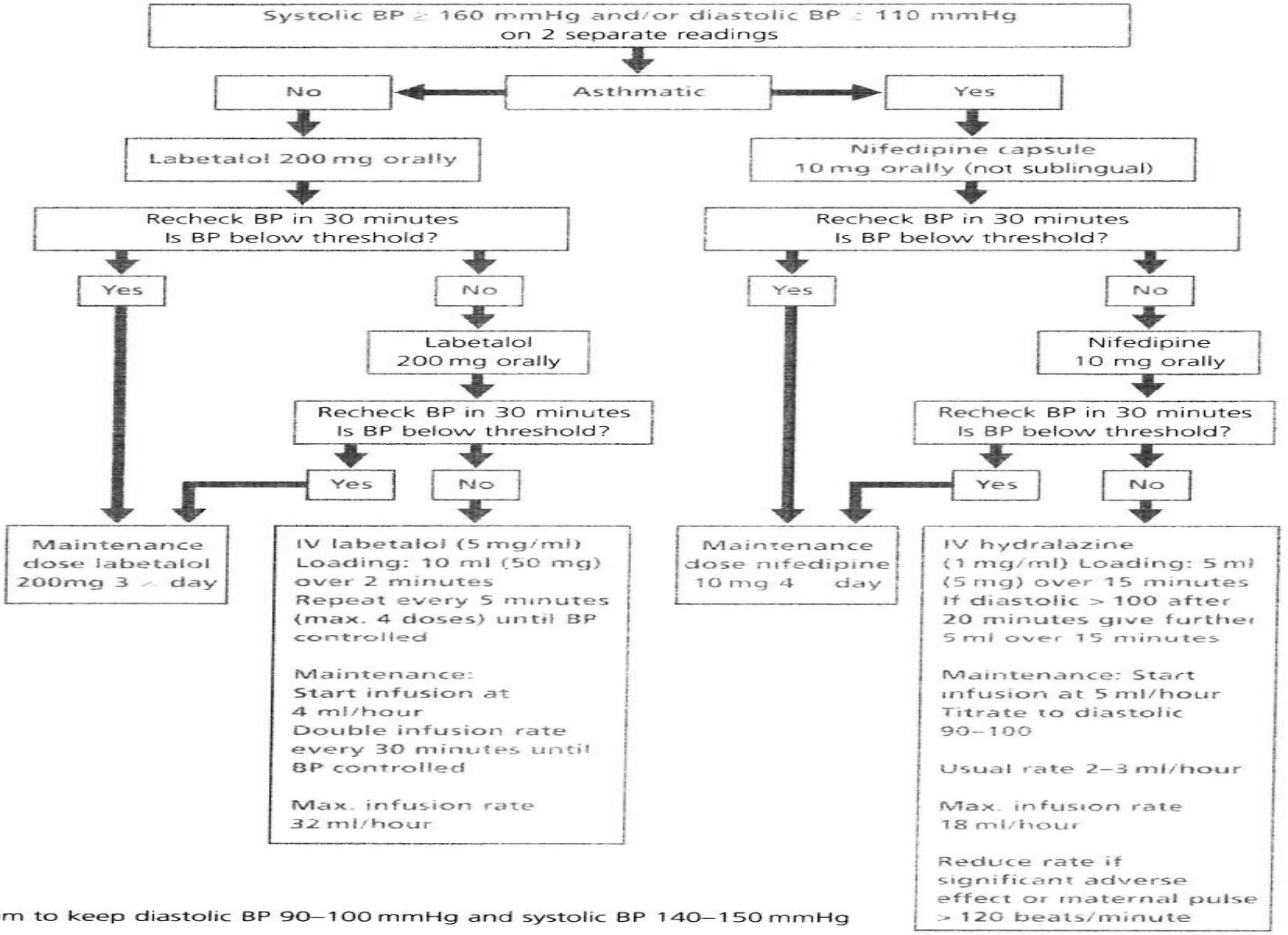


Figure 3.4 Treatment guidelines for severe hypertension

If the mean arterial blood pressure values are required, cak:ulated using the formula below these can be cakulated

using the formula below.

Prevent *seizures*Magnesium sulphate should be given as for the previous eclampsia guideline; that is, loading dose and maintenance infusion.

$$MAP = \text{Diastolic BP} + \frac{\text{Systolic BP} - \text{Diastolic BP}}{3}$$

Monitor

- Respiratory rate, pulse and blood pressure - every 15 minutes until
- stabilised, then every 30 minutes.
- Hourly urine output - Foley's catheter with urometer.
- Hourly oxygen saturations.
- Routine blood samples 12-24 hours: FBC, clotting screen, U&Es, LFTs

Additional observations and investigation for mothers on magnesium sulphate:

- Continuously monitor oxygen saturation.
- Hourly respiratory rate.
- Hourly deep tendon reflexes.
- If loss of reflexes, stop infusion and check magnesium levels.
- If level < 4 mmol/l or reflexes return,ecommence infusion at 0.5 g/hour.
- If oliguric, magnesium levels should be taken (less than 100 ml in 4 hours). Therapeutic range is 2-4 mmoi/l *Strict*

Strict fluid balance

Close monitoring of fluid intake and urinary output is required. Previous Confidential Enquiries have ighlighted the risk of fluid overload causing pulmonary oedema in women with severe pre-eclampsia.

The maximum fluid intake (a combination of intravenous and oral intake) should be 1 ml/kg/hour. This is often approximated to 85 ml/hour. Beware of dilute drug administration and excessive oxytocin, as this may inhibit urinary output.

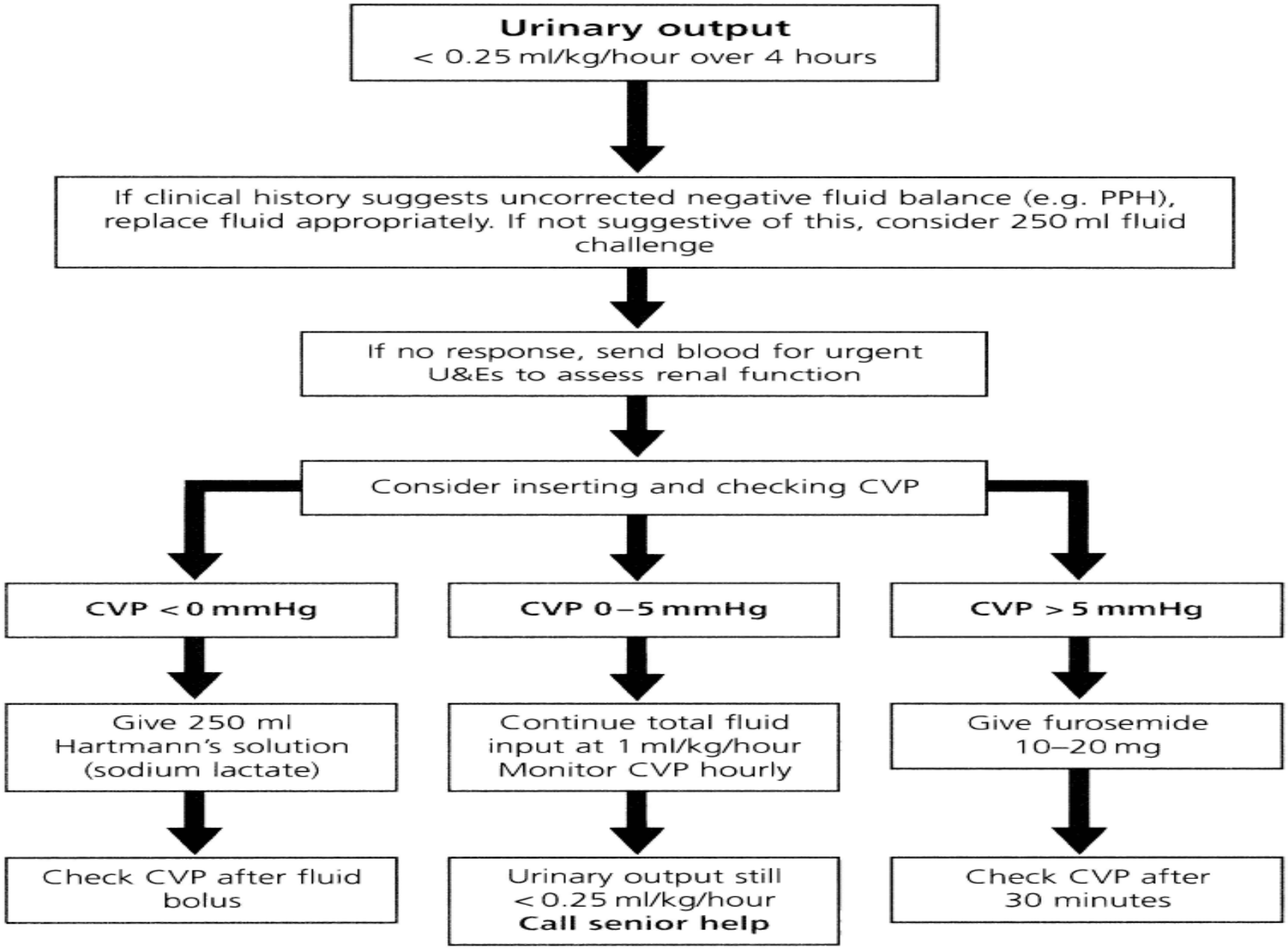


Figure 3.5 Fluid balance in the mother with oliguric pre-eclampsia

Clotting abnormalities

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3. Deliver

Deliver the mother when her condition is stable. The choice of caesarean section or induction of labour should be made on an individual basis. For the first stage of labour, close observation and the continuous attendance of an experienced midwife is required.

- Use continuous electronic fetal monitoring: there is increased risk of fetal hypoxia and placental abruption.
- Consider the use of epidural anaesthesia (pain tends to increase blood pressure).

- It is safe for the mother to have a normal active second stage of labour provided that she does not have a severe headache or visual disturbances and that her blood pressure is within acceptable limits. Consider instrumental delivery if:
- the mother complains of severe headache or visual disturbances
- the blood pressure is uncontrolled (greater than 160 mmHg systolic or 105 mmHg diastolic, between contractions).
- The third stage of labour should be managed with 5 units of Syntocinon (Alliance) 1M (or slowly IV).
- Ergometrine and Syntometrine® (Alliance) should not be given as
- these preparations may elevate the blood pressure further.

Post-delivery care

The mother will require continuous care after delivery. This may be for several hours or several days, epending on the circumstances. Remember that most eclamptic seizures occur in the postnatal period. Pre-eclampsia can worsen several days after delivery. If symptoms arise, monitor and investigate. This may occasionally mean transfer back to delivery suite.

Ensure adequate analgesia but note that nonsteroidals such as diclofenac must not be given, as this can precipitate renal failure.

- Consider the need for thromboprophylaxis. Apply thromboembolic
- deterrent stockings as soon as possible. Commence low molecular heparin post-delivery provided that platelet count is greater than 100

Transfer to intensive therapy unit

- Previous Confidential Enquiries have highlighted that units should have documented procedures for the transfer of a mother to an intensive therapy unit.

  The indications for transfer include:

- renal failure not responding to guidelines and after discussion with renal physicians
- need for ventilation:

-uncontrolled seizures after delivery

-unconscious mother

-pulmonary oedema not responding to conservative measures.

باتشکر از توجه شما عزیزان

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