Definition - Eclampsia

- Seizures usually occurring in women with PIH/PE not due to other causes (e.g. epilepsy, brain tumour)
- Any seizures occurring in pregnancy is usually treated as eclampsia until proven otherwise
- Antenatally 38%
 Intrapartum 18%
 Postpartum 44% (especially the first 24 hours)

Classification

- Part of "Hypertensive disorders of pregnancy"
- Classification of Hypertensive disorder of pregnancy

Classification	Characteristics
1) Pregnancy-induced HPT @ Gestational HPT	
➤ PIH	HPT only
➤ PE	HPT + proteinuria
➤ Eclampsia	
2) Chronic HPT	HPT < 20 weeks @ before pregnancy
3) Chronic HPT with superimposed PE/Eclampsia	
4) Unclassified HPT	HPT >20 weeks with no BP recorded before 20 weeks

Definition – Pre-eclampsia

- A multisystem disorder
- Develops after 20 weeks of gestation

With	
Hypertension	≥ 140/90 (2x readings 4 - 6 hours apart with rest in between)
	Systolic BP ≥ 30mmHg @ Diastolic BP ≥ 15 mmHg - from the antenatal booking BP
Proteinuria	Urine dipstick for protein : ≥ 2+
	24 hour urine albumin ≥ 300 mg

Why is PE important?

Maternal Complications	Hypertension
	Risk of Cerebrovascular accident e.g. stroke
	Pulmonary oedema
	Renal failure
	Liver failure
	DIVC
	Placenta abruptio
	Eclampsia (Risk of aspiration pnuemonia)
Fetal Complications	Prematurity
	IUGR
	IUD
	Acute fetal distress

Management of severe pre-eclampsia

- History including symptoms of impending eclampsia
 - Headache
 - Blurring of vision
 - · Epigastric pain
- Examination including
 - · BP & PR
 - Reflexes (Brisk)
- Investigations:

Blood	Urine
1) FBC (esp. platelet) 2) BUSE 3) Se Creatinine & Uric acid 4) LFT 5) PT/APTT 6) Group & Save (GSH)	1) Urine albumin/protein (dipstick or UFEME) *24h urine collection – usually done if urine albumin + or 2+ (not needed if clear cut PE)

If suspected UTI: UFEME + Urine C&S

Treatment

- Control BP (anti-hypertensives)
- Prevent seizures (MgSO4)
- Fluid management
- · Decide on mode & timing of delivery

Observations

Maternal: Symptoms

BP + PR

Reflexes +/- clonus

Urine protein

Urine output(I/O chart)

Fetal: CTG

U/S or Doppler if indicated

- Designate one to one midwifery care
- Transfer to Labour Ward when stable

Anti-hypertensives

Treat hypertension if:

- Acute hypertensive crisis
 - Systolic BP ≥ 180 mmHg
 - Diastolic BP ≥ 110 mmHg
 - Mean arterial pressure ≥ 125mmHg
- Persistent hypertension
 - BP ≥ 160/100 mm Hg

Acute HPT crisis	Persistent HPT
IV labetalol	T. Labetalol
IV hydralazine	T. Methyldopa
IV GTN	T. Nifedipine

Acute hypertensive crisis

Aim: BP 130-140/90-100

Avoid too rapid fall in BP

Continuous FHR monitoring

Management of seizures

- Seizures are usually self limiting
- MGSO4 is the ANTICONVULSANT of choice
 - Both in controlling as well as in preventing seizure
 - IV diazepam is NOT the drug of choice unless MgSO4 is not available.
- Avoid poly-pharmacy to treat seizures, as this increases the risk of respiratory arrest
- Protocol
 - Loading dose of MGSO4 (4 gm over 10-15 minutes)
 - 8 mls of MgSO4 dilute in 12 mls of N/S (20 cc syringe)
 - Followed by maintenance dose of I gm/hr
 - 50 mls (10 ampoules) in 500 mls N/S @ Hartmann's solution
 - Give at 21 mls/hr (1g/hour)
 - Usually continued for 24 hours after delivery or after the last convulsion (not 24 hours after starting MgSO4)
- Important: Rapid/bolus injection of MgSO4 can cause cardiorespiratory arrest! Be careful!

Management of seizures

- If no IV access, can administer MgSO4 through deep intramuscular route:
 - Loading dose: IM MgSO4 5g (10ml) in each buttock (10g total) @ IV 4g over 10-15min
 - Maintenance : IM MgSO4 5g every 4 hourly
 - Extremely painful, risk of gluteal abscess
 - Addition of 1ml of 1% xylocaine to the solution may help to reduce the pain at the injection site

Monitoring when on MgSO4

Hourly monitoring

- Patellar Reflexes should be present
 - Earliest sign if toxicity develops
- Respiratory Rate >12-16 bpm
- Urine Output > 30 mls/h (@ 100mls/4 hours)
 - Ensure MgSO4 is excreted through the kidneys
 - MgSO4 does not cause renal impairment/failure
- Oxygen saturation

Management of MgSO4 toxicity

Urine output <100ml/4hr @ <30mls/hr

May challenge with 250cc of Hartman solution

If no clinical signs of magnesium toxicity, reduce rate to 0.5gm/hrs

Absent patellar reflexes

Stop MgSO4 infusion

May resume if patellar reflexes return

Respiratory depression

Stop MgSO4 infusion
Give oxygen and monitor closely

Call for HELP

Respiratory arrest

Cardiac arrest

Resuscitate---CPR, intubate and ventilate immediately Stop MgSO4 infusion stat IV Calcium gluconate

10% Calcium Gluconate 10ml IV over 3-5 minutes

Antidote

Management of recurrent seizures

- Seizures continue or recur
 Give a 2nd bolus dose of MgSO4
 Over 10 to 15 minutes
 2g if < 70kg and 4g if > 70kg
 Check deep tendon reflex & RR before repeating dose
- What if seizures continues despite further bolus dose of MgSO4?

Options include: DIAZEPAM (10mg)
THIOPENTONE (50mg IV)
Intubation then becomes necessary in such women to protect the airway and ensure adequate oxygenation.

- FURTHER SEIZURES SHOULD BE MANAGED BY INTERMITTENT POSITIVE PRESSURE VENTILATION AND MUSCLE RELAXATION (anaesthetist)
- CT Scan Brain to assess for intracerebral bleeding

Management of fluid balance

- BEWARE: Iatrogenic fluid overload in pre eclampsia/ eclampsia
 - Due to damage endothelial linings of the capillary 3rd space fluid loss
 - Can cause pulmonary edema
- Strict I/O chart
- Maintain crystallloid fluid (N/S & Hartman)

Total fluid/day: 1.5-2.0 L/day Includes all fluid given (e.g IVD, IV drugs)

- Diuretics--only if confirmed pulmonary oedema
- Selective CVP use

Mx for Eclampsia

- Do not leave patient alone
- Call for HELP
- DR ABC—left lateral position, if supine, turn the patient's head to the side
 - Airway (e.g. guedel mouthpiece, prevent tongue biting)
 - Breathing
 - Circulation
- Obtain IV access (2x, large bore (14-16G))
- Control seizure Mg SO4
- Control HPT
- Deliver once stable

Clinic setting - Pre-eclampsia

- Hypertension + proteinuria refer to Dr. in MCH stat @ refer directly to SGH (do not wait for an appointment)
- Any proteinuria with hypertension should be referred irregardless of whether the patient has UTI or not
 - If urine FEME shows UTI picture there can be a proteinuria of 1+ or 2+. Do not assume proteinuria of 3+ to 4+ is due to UTI.

Delivery

- Delivery is decided based on:
 - Patient's condition (Clinical/Biochemical)
 - Gestational age
- In severe pre-eclampsia or eclampsia, the definitive treatment is delivery
 - However, it is inappropriate to delivery an unstable mother even if there is fetal distress.
- If delivery to be delayed and gestation less than 34 weeks:
 - IM Dexamethasone 6mg 12 hours apart for 48 hours
 - Close monitoring
- Either IOL @ Caesarean section depending on situation
- Avoid ergometrine in 3rd stage

Post delivery care

- High dependency care for the first 24 to 48 hours after delivery
- One-to-one care
- Close attention to fluid balance
- Maintain vigilance as majority of eclamptic seizures occur after delivery
- Reduce anti-hypertensive medications as indicated
- Repeat Investigations (FBC, clotting screen, liver function test, urea and electrolytes) 6-12 hrly if indicated

