Eclampsia
Maternity Care Guidelines
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ESMOE

2030 NDP

Eclampsia

- Generalised tonic-clonic seizures after 20 weeks of pregnancy and within 7 days after delivery, associated with hypertension and proteinuria.
- Note that pregnant women with epilepsy are more likely to develop pre-eclampsia.
    - Therefore, epileptics who manifest with new onset hypertension and seizures must be managed as eclampsia.

HELLP Syndrome

- This refers to the presence of haemolysis, elevated liver enzymes and low platelets, in association with hypertension and proteinuria.
- The HELLP syndrome is a variant of pre-eclampsia; it is not a separate disorder but a serious complication and requires specialist management.

KEY FINDINGS : CAUSES OF HYPERTENSIVE DEATH

Primary Obstetric Problem	2020-2022 =539	2017-2019 =590
Chronic (pre-existing hypertension/hypertension before 20 weeks GA)	21	39
Pre-eclampsia	108-severe features 28-without	
Gestational Hpt	26	
Eclampsia	264 (49 %)	275 (46.6)
HELLP	82	96
Liver rupture	10	16

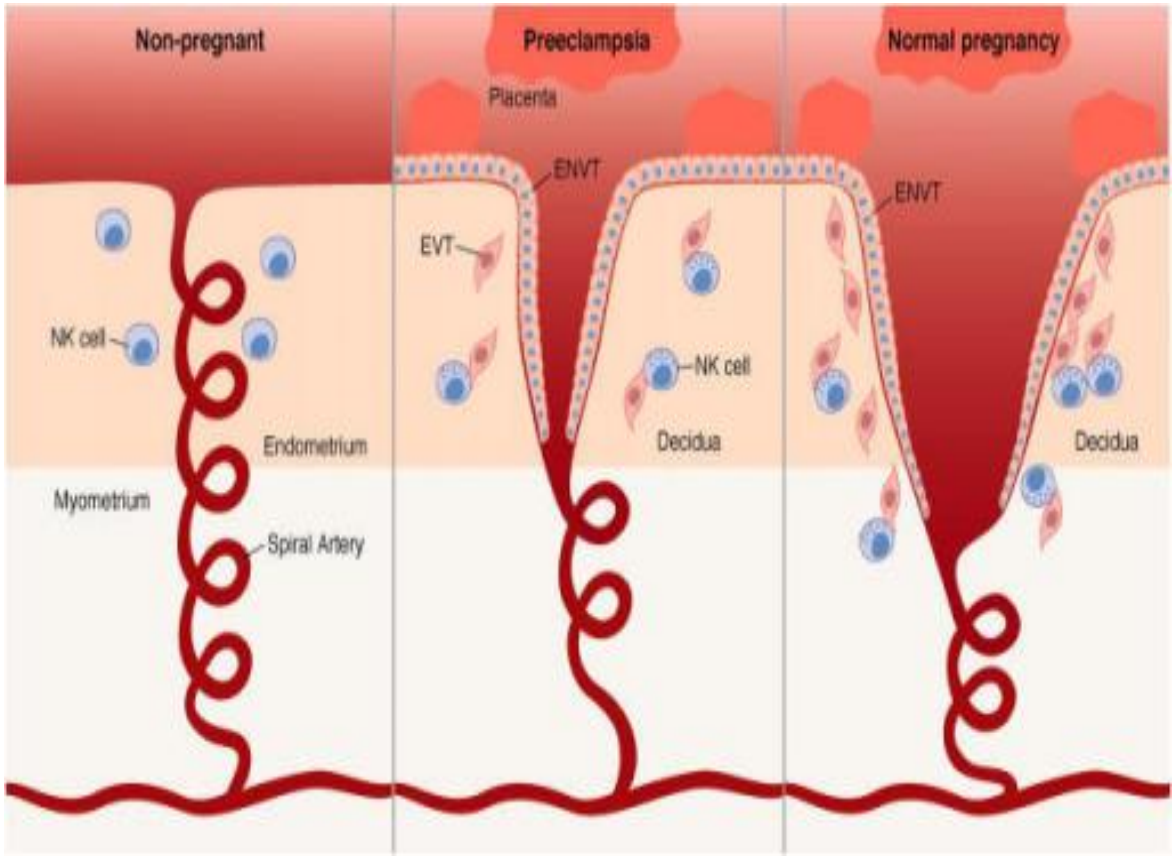
FINAL CAUSES OF DEATH

	Number 2020-2022	Number 2017-2019	Number 2014-2016
Cerebral complications	57.3%	56.3%	
Intracranial haemorrhage	164(30 %)	160(27%)	191(28.1%)
Cardiac failure/Pulmonary oedema	31.4%	35.1%	34.3%
Acute kidney injury	20%	19.8%	
DIC Liver failure	10% 9.5%	15.2% 12.3%	12.9%

DEFINITION OF SEVERE HYPERTENSION

- **> Systolic 160mmHg and / or 110mmHg**
- **In pregnancy, requires emergency treatment**
- **Target BP systolic 140 – 150 diastolic 90 - 100**

Pathophysiology : High resistance



Ischaemic placenta

Vaso-active substances

Vasoconstriction and endothelial damage

PREVENTION OF PRE ECLAMPSIA

- **Low dose Aspirin**
  - Reduces frequency of preclapmsia by 10-20%
  - Evidence of Efficacy
    - *A 2019 meta-analysis reported the following main outcomes(74 trails,> 40 000 women)*
      - *Reduction in pre eclampsia*
      - *Reduction in foetal or neonatal death*
      - *Reduction in overall preterm birth*
      - *Reduction in small for gestational age infants*
      - *Reduction in composite serious adverse effects and neonatal outcomes*

Duley L, Meher S, Hunter KE, et al. Antiplatelet agents for preventing pre-eclampsia and its complications. Cochrane Database Syst Rev 2019; 2019.

HYPERTENSION DURING PREGNANCY

Prevention	• 1 gram elemental **calcium** in divided doses (e.g., calcium carbonate, oral, 500 mg 12 hourly • **Aspirin 150mg** taken at bedtime (at night – to prevent gastric irritation) from 6 weeks of gestation (but preferably before 16 weeks) until 36 weeks. • **Risk factors :pre-eclampsia in a previous pregnancy, chronic hypertension or diabetes, and BMI >35 and twins in current pregnancy**
Antihypertensive during pregnancy	• Methylodopa 250 -500 tds • Amilodipine 5mg to 10mg
Acute severe hypertension	• Nifedipine 10 mg orally • If there is still acute severe hypertension after three doses of quick acting nifedipine, give intravenous labetalol to control her high blood pressure. • The dose **of labetolol is 20** mg IV • If there is still acute severe hypertension after 20 minutes give a further **40 mg labetolol**

MANAGEMENT OF ECLAMPSIA

MGSO4 TOXICITY AND RECURRENCE

MGSO4 Toxicity	Do not give the next dose of magnesium if: • Absent knee jerk • Urine output less than 100 mls in last 4 hours (< 25ml/hr) • Respiratory rate less than 16 breaths per minute • If respiratory rate less than 16 breaths / minute stop magnesium and Give calcium gluconate 10% 10mg iv over 10 minutes
Restless Agitated and recurrent seizure	• Lorazapam 4mg every 10-15 min max 8mg • Clonazapam 2mg every 5 min max 4 • Diazapam if nil else 10-20 mg not faster than 2 mg min
Persistent Seizures	• Additional MGSO4 2G over 10 min • Intubation equipment • CPAP • Transport ventilator

LABETALOL AND SAFE TRANSFER

- If there is still **acute severe hypertension after three doses of quick acting nifedipine**
- Ideally within a high care setting with invasive blood pressure monitoring:
  - **Labetalol, IV infusion, 2 mg/minute to a total of 1–2 mg/kg.**
  - **Reconstitute solution as follows:**
    - ***Discard 40 mL of sodium chloride 0.9% from a 200 mL container.***
    - ***Add 2 vials (2 x 100 mg) of labetalol (5 mg/mL) to the remaining 160 mL of sodium chloride 0.9% to create a solution of 1 mg/mL.***
    - ***Start at 40mL/hour to a maximum of 160 mL/hour.***
    - ***Titrate against BP – aim for BP of 140/100 mmHg.***
- Once hypertensive crisis has resolved**,** switch to an oral preparation.
- **Best mode of delivery for severe pre-eclampsia and eclampsia is vaginally; CD is only done for the usual indications.**
- **Anaesthesia for severe pre-eclampsia is complicated**

MANAGEMENT OF ECLAMPSIA ONCE STABILISED

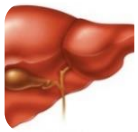
- Draw blood for haemoglobin, platelet count, creatinine, ALT and LDH and send urine ACR
- **Assess the patient using ESMOE approach BIG 5 ,Forgotten 4 and core 1**
- **Assess the fetal condition ONLY once the mother is completely stable AND the platelet count is known**.
- Rule out abruptio placenta or intra-uterine growth restriction. **Do a CTG only if the baby is viable.**
- Assess whether the patient is in labour**,**
  - No excessive bearing down and **do not use ergometrine**
  - Use oxytocin 10 units as prophylaxis IMI and prevent PPH

- Record in early warning chart and MGSO4 chart in MCR

Preeclampsia - Complications

Maternal

CNS
- Seizures
- Cerebral Edema
- Cerebral Hemorrhage
- Stroke (thrombosis)



Hepatic
- Hepatic Failure
- Hepatic Rupture
- Subcapsular Hemorrhage

Heamatological
- DIC
- HELLP

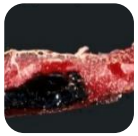
Renal
- Renal Failure
- Oliguria
- Proteinuria >> Hypoproteinemia (Glomerular Injury)

Lungs
- Pulmonary Edema

Fetal

Preterm Delivery

Stillbirth (IUFD)
Intrapartum Fetal Distress



Placental Abruption

Uteroplacental Insufficency
- Hypoxic Neurological Injury
- IUGR
- Oligohydraminos

LABORATORY FINDINGS PET

- **Decreased platelet count**
  - <100000/microL
- **Liver chemistries**
  - Elevated transaminase levels (ALT >70)
  - Elevated serum uric acid →haemolysis
  - LDH >600
- **Coagulation studies**
  - **The prothrombin time, partial thromboplastin time, fibrinogen concentration** are not affected by pre eclampsia unless there are additional complications such as placental abruption, severe bleeding or severe liver dysfunction.

Pre eclampsia Lab findings

- **Protenuria**
  - >0.3g protein in a 24 hour urine specimen.
  - Random urine protein:creatinine ratio >0.3mg protein/mg creatinine
  - Protein >2+(30mg/dL) on a paper test strip
- **Elevated creatinine**
  - >120 micromol/L or doubling of the patient baseline creatinine level in the absence of other renal disease.
- **Hyperuricaemia**

POST-PARTUM OBSERVATION

Post -partum observation	• Observations are done (blood pressure, pulse rate, respiratory rate, chest examination and fluid balance – chart).half hourly for two hours
	  ○ then hourly for four hours
	  ○ then two hourly for eight hours
	  ○ then four hourly
	  • **use a colour coded observation chart/early warning.**
	• MgSO4 should be continued for up to 24 hours after delivery.
	• Observe patient for 24-48 hours.
	• Keep as an inpatient till 3 days
	• Follow up at a district health service postnatal clinic within 6 days.

Post- Partum anti-hypertensive	• 1st ACE inhibitor (enalapril) at a dose of 5 mg in the morning, to 20 mg daily. • 2nd channel blocker (amlodipine) 5 mg daily and increase to 10 mg daily when needed. • 3rd beta blocker (atenolol) 50 mg daily to 100 mg daily if needed. These patients should be referred back L2/3 • NB Hydrochlorothiazide can be started as a first line drug in cases of chronic hypertension (12.5 mg daily)

POST NATAL FOLLOW-UP

Post natal Follow up	• The patient should be managed with anti-hypertensive medication after delivery and kept in hospital until blood pressure is controlled for 72-hours and all the organ systems are back to normal function . • Follow up **three days** after discharge and 6 weeks post- partum at a high-risk postnatal clinic, • If there is good control with one drug only, provide a **prescription for four weeks** with discharge, so that the client is without medication for two weeks • When followed up at the six weeks visit. A good assessment can then be made as to whether she will need further workup for hypertension and chronic medication. • If she was discharged on more than one drug to control the blood pressure, rather do **a step-wise withdrawal of one drug at a time** with more regular follow up at a high-risk clinic.

PULMONARY OEDEMA

Pulmonary oedema	• Pre-eclamptic patient with respiratory rate >24/minute- examine the lungs carefully for pulmonary oedema • If respiratory rate>30 give **Lasix 40 mg and if still more 30 after 30 min** • Give lasix 80 mg IVI • If still high after 30min then repeat lasix 40 mg • Give sublingual **isorbide dinitrate** 5mg even if there is no pain • Maintain adequate oxygenation and ventilation • Non-invasive ventilation/CPAP if available • Intubate and ventilate with lung protective strategies

Thrombo-embolic disease: Risk Factors

LOW:
Uncomplicated pregnancy and NVD

HIGH:
Any previous VTE
Anyone requiring antenatal LMWH

MEDIUM:
All C/S in labour
Asymptomatic thrombophilia
BMI ≥40kg/m2
Hospital admission ≥3 days
Other co-morbids: cardiac or pulmonary disease, SLE, cancer
Intravenous drug user

OR ≥ 2 of the following:
Age >35 years
BMI ≥30kg/m2
Parity ≥3
Smoker
Elective C/S
Any surgical procedure in the perinium
Gross varicose veins
Current systemic infection
Immobility
Pre-eclampsia in current pregnancy
Prolonged labour ≥24hrs
PPH ≥1L or requiring blood transfusion
Stillborn in current pregnancy
Preterm <37weeks in current pregnancy
Family Hx of unprovoked or oestrogen related VTE

Thrombo-embolic disease: Thromboprophylaxis

- **Recommended doses for postnatal LMWH:**

Weight (kg)	Enoxaparin	Deltaparin
<50	20mg daily	2500IU daily
50-90	40mg daily	5000IU daily
91-130	60mg daily	7500IU daily
131-170	80mg daily	10 000IU daily

Caution – Fluid therapy

- **Evidence support a restrictive intravenous and oral fluid therapy in severe HDP.**
- **A total of 80ml of intravenous fluid per hour is generally advocated.**

National Department of Health Republic of South Africa. Guidelines for maternity care in South Africa: A manual for clinics, community health centres and district hospitals 2015; 4th edition

von Dadelszen P, et al. Evidence-based management for preeclampsia. Front Biosci 2007;12:2876-89.

Thank you