

Station 5 - SCBD

Candidate instructions:

This station is a **Standardised Case-Based Discussion**. You will be interacting directly with an Examiner. You will be asked to outline your assessment and management to the following clinical situation. Further information will be provided as the case evolves. The examiner will be assessing your medical knowledge as well as your reasoning and rationale to your approach and decisions. Please be as specific as possible when answering. For example, when discussing drugs, describe your dosage regimen and the reasons why you chose that regimen, as opposed to other regimens.

Case information:

You are managing a 28 year old female who is 3 days post-partum. She has had an uncomplicated pregnancy and normal term delivery of a healthy baby. She has presented with increasing peripheral oedema, epigastric pain, headaches and lethargy. You are working in a Tertiary ED with full Obstetric services.

Her Vital signs:

- Temperature 36.5 degrees
- Heart Rate 85
- BP 150/95
- RR 18
- O2sats 95 % on room air

Past medical history:

- Asthma
- G2P2 uncomplicated previous pregnancy with 3 year old girl
- No medications , No known allergies

Social History – lives with husband and 3 year old daughter

Your tasks:

- Answer questions from the examiner regarding your diagnosis and management of this patient

Domains Examined:

Medical Expertise

- Diagnosis (20%)

- Management (50%)

Prioritization and Decision Making (30%)

Examiner Instructions:

0-1:30 mins Stage 1 “What is the most likely diagnosis and what are your other differential diagnoses for this presentation and why?”

Expected response (Pre-eclampsia + 3 required):

Most likely - Pre-eclampsia

HELLP – Haemolysis, Elevated LFTs, Low Platelets

PRESS – Posterior Reversible Encephalopathy syndrome - h/a, confusion, visual loss from HT HT of gestation/pregnancy

Subarachnoid Haemorrhage

Central Venous Sinus Thrombosis

Cardiomyopathy

1:30 – 3:00 mins Stage 2: “What are then diagnostic criteria for pre-eclampsia?”

Expected response (BP + 3 others):

- SBP > 140mmHg or DBP > 90mmHg
- + one or more of (can prompt “anything else”)
 - proteinuria (>0.3g/24hrs), urinalysis 3+ protein
 - renal impairment – proteinuria, high Cr
 - liver disease – epigastric pain, liver tenderness, elevated transaminases
 - neurological problems – seizures, visual disturbance, papilloedema, clonus
 - haematological disturbance – thrombocytopaenia, haemolysis, DIC
 - fetal growth restriction – non reassuring CTG, reverse flow on Doppler, IUGR
 - severe if SBP >160 or DBP >110 or severe organ dysfunction

3:00- 6:00 Stage 3: “Shortly after arrival to ED she has a generalized tonic-clonic seizure. How would you manage her now?”

Expected response:

Supportive:

- resus cubicle, team approach, full monitoring
- A/B - O2, Left lateral position, suction, Guedel/NPA, BVM, RSI and appropriate drugs+technique
- C – iv access- urgent BSL + other bloods eg FBE(platelets), UEC (renal) Coags (DIC), beware IVF bolus and risk of Pulmonary Oedema, accept up to 250mls
- Urgent Obstetric referral, also ICU admission for ongoing care and monitoring for complications - ICH, CVA, pulmonary oedema, respiratory failure, hepatic failure -seek/treat other causes of seizures

eg CNS(SAH/PRESS/Venous sinus thrombosis), Electrolyte disturbance, Epilepsy

Specific:

- Magnesium: -Loading dose – 4-5g (8-10mL) of magnesium sulphate 50% in 10ms slow iv push over 5-10 minutes
 - Infusion – 1-2g/hr for 24 hrs (Aim Mg level = 1.7-4mmol/L care in renal impairment)
- IV Benzodiazepine while preparing MgSO₄ acceptable eg Midazolam 5-10mg iv, Diazepam 5-10mg iv, Clonazepam 1-2mg iv, Lorazepam 4mg iv
- HT Management: IV (aim BP 140-160/80-100mmHg)
 - Hydralazine 5–10 mg IV over 3–10 minutes, Repeated 5 mg IV every 20 minutes if required, Maximum dose 30 mg, Infusion may be required, May require IVF plasma expansion
 - Labetalol - Initially 20 mg IV bolus over 2 minutes, Repeated doses 40–80 mg IV every, 10 minutes to maximum of 300 mg if required, Infusion may be required
 - Nifedipine IV 100-200mg over 2 min

6:00 – 7:00 Stage 4: “How would you monitor her for significant hypermagnesaemia?” (Require reflexes/ECG and one other)

Mg conc (mmol/L) Effects

0.8 - 1.0 normal plasma level

1.7 - 3.5 therapeutic range

2.5 - 5.0 **ECG changes** (P-Q interval prolongation, widen QRS complex) 4.0 - 5.0

reduction in deep tendon reflexes

> 5.0 loss of deep tendon reflexes

> 7.5 SA/AV blockade. **Respiratory paralysis** and **CNS depression** > 12 cardiac arrest

Other Side effects:

Hypotension, Facial flushing, Visual disturbances, IV site flushing, Chest pain, Nasal stuffiness

Additional Q- ***“What is the therapeutic range for Magnesium in pre-eclampsia?”***

Marking criteria

Medical Expertise:

Diagnosis:

-Most likely Pre-eclampsia + 3 others required:

HELLP – Haemolysis, Elevated LFTs, Low Platelets

PRESS – Posterior Reversible Encephalopathy syndrome – h/a, confusion, visual loss from HT HT of gestation/pregnancy

Subarachnoid Haemorrhage

Central Venous Sinus Thrombosis

Other reasonable diagnoses accepted

-Definition of Pre-eclampsia: (require BP + 3 others)

SBP > 140mmHg or DBP > 90mmHg

+ one or more of

- proteinuria (>0.3g/24hrs)
- renal impairment – proteinuria, high Cr
- liver disease – epigastric pain, liver tenderness, elevated transaminases
- neurological problems – seizures, visual disturbance, papilloedema, clonus
- haematological disturbance – thrombocytopenia, haemolysis, DIC
- fetal growth restriction – non reassuring CTG, reverse flow on Doppler, IUGR
- severe if SBP >160 or DBP >110 or severe organ dysfunction

Management

Supportive:

-resus cubicle, team approach, full monitoring

-**A/B** - O₂, Left lateral position, suction, Guedel/NPA, BVM

-**C** – iv access- urgent BSL + other bloods eg FBE(platelets), UEC (renal) Coags (DIC), beware IVF bolus and risk of Pulmonary Oedema, accept up to 250mls

- Urgent Obstetric referral, also ICU admission for ongoing care and monitoring for complications - ICH, CVA, pulmonary oedema, respiratory failure, hepatic failure

-seek/treat other causes of seizures eg CNS(SAH/PRESS/Venous sinus thrombosis), Electrolyte disturbance, Epilepsy

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-Labetalol - Initially 20 mg IV bolus over 2 mins, Repeated doses 40–80 mg IV every 10 mins to maximum of 300 mg if required, Infusion may be required

-Nifedipine IV 100-200mg over 2 min

-Hypermagnasemia: (Require reflexes/ECG and one other)

Mg conc (mmol/L) Effects

0.8 - 1.0 normal plasma level

1.7 - 3.5 therapeutic range

2.5 - 5.0 **ECG changes** (P-Q interval prolongation, widen QRS complex) 4.0 -

5.0 **reduction in deep tendon reflexes**

> 5.0 loss of deep tendon reflexes

> 7.5 SA/AV blockade. **Respiratory paralysis** and **CNS depression** > 12

cardiac arrest

Other Side effects: Hypotension, Facial flushing, Visual disturbances, IV site flushing, Chest pain, Nasal stuffiness

Prioritization and decision making

- recognises **Pre-eclampsia and most likely diagnosis**

- rapidly manages seizure and prioritizes **MgSo4 over Benzodiazepines**

-arranges urgent Obstetric referral and ICU disposition

-considers other reasonable DDx