

## CLINQUIZ

### Obstetric emergencies

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Following questions pertain to every day encounters of real life emergencies in obstetric anesthesia practice. Please select one best option. Answers are given at the end.

**Q 1.** Features of severe pre-eclampsia include:

- A. Fetal growth retardation
- B. Peripheral oedema
- C. Systolic BP more than 160
- D. Elevated liver enzyme
- E. proteinuria

**Q 2:** A 27 years/F, 38 weeks pregnant with pre eclampsia.

Booked for urgent CS due to failure to progress to induction of labor. No fetal distress. BP is 175/93. She is on labetalol infusion. Magnesium sulphate advised, but not yet started. You obtain consent for GA and regional anesthesia. Spinal anaesthesia is given, successful analgesia, surgery is started, but suddenly patient starts convulsions.

What will be your immediate action;

- A. Give magnesium sulphate bolus dose, followed by infusion.
- B. Midazolam 5mg IV stat to terminate the convulsions.
- C. Bag mask ventilation.
- D. Rapid sequence intubation and maintain general anaesthesia.
- E. LMA insertion till convulsions subside.

**Q 3:** A 36-year-old multigravida is undergoing caesarean section following failed trial of forceps delivery.

Shortly after administration of prophylactic antibiotics, she complains of dyspnea, and the surgeon complains of excessive bleeding from wound edges. There is wheeze on auscultation, you administer oxygen, but the patient becomes more restless, cyanosed and unresponsive.

The likely diagnosis is:

- A. Amniotic fluid embolism
- B. Massive pulmonary embolism
- C. HELLP syndrome

- D. Anaphylaxis
- E. Acute asthma

**Q 4:** Regarding Factor VIII, which statement is NOT Correct;

- A- Fresh frozen plasma is considered to have 1 U of factor VIII activity per ml.
- B. Cryoprecipitate 5-10 U/ml
- C. Factor VIII concentrate 40 U/ml.
- D. Each unit of factor VIII transfused is estimated to raise factor VIII levels 5% per kilogram of body weight.
- E. Half life of factor VIII is 8-12 hours.

**Q 5:** During management of a major postpartum hemorrhage (PPH), secondary to uterine atony. Which of the following drug doses is incorrect?

- A. Oxytocin – 5 units intravenously
- B. Ergometrine– 0.5 mg intravenously
- C. Oxytocin infusion – 10 units/h intravenously
- D. Carboprost – 250 mcg intramuscularly
- E. Misoprostol – 400 mcg rectally

**Q 6:** Changes in pituitary following severe obstetric hemorrhage are;

- A. Nelsons syndrome
- B. Sheehan's syndrome
- C. Cushing syndrome
- D. Poissere's effect.
- E. Mendelson syndrome

**Q 7:** In case of cesarean section in patient with placenta accreta, following is the most appropriate step to prevent massive bleeding and chances of hysterectomy during surgery;

- A. Regional Anaesthesia
- B. FFP transfusion preoperatively.
- C. Arterial balloon catheters placement into the uterine arteries.
- D. Vit. K injection.
- E. DDAVP after the delivery.

**Q 8:** 33 years old lady undergoing cesarian section under effective epidural anaesthesia.

## Obstetric emergencies

Obstetrician tell you that uterus is so tight that she cannot pull out the fetus, and asks you to do something to relax the uterus. What will be your action;

- A. Give bolus dose of local anesthetic through epidural catheter.
- B. Midazolam 5 mg IV
- C. Convert to GA with RSI.
- D. Sublingual or IV Nitroglycerine.
- E. Subcutaneous salbutamol

**Q 9:** MgSO<sub>4</sub> is used in pre eclampsia to prevent convulsions.

All are true EXCEPT;

- A. Therapeutic level is 4-7 mEq/L
- B. Patellar reflex is lost @ 8-10 mEq/L
- C. Cardiac arrest@ more than 25mEq/L
- D. Potentiatesdepolarizing AND Non depolarizing muscle relaxants
- E. Management of MgSO<sub>4</sub> toxicity is to stop the medication and give diuretics.

**Q10:** 29yearsold lady full term pregnant brought to OR for emergency cesarean section due to fetal distress. You give Propofol and succinylcholine for RSI. On laryngoscopy, you hardly visualize tip of uvula. You tried twice for tracheal intubation, but failed. Bag mask ventilation is also not effective. SpO<sub>2</sub> of the patient is 80%.

What will be your next action;

- A. Awake the patient and plan for regional anesthesia.
- B. Use fiber optic for intubation.
- C. Ask your colleague to attempt for intubation.
- D. Needle cricothyrotomy and proceed for C/S.
- E. Blind nasal intubation.

## Answers

**A 1: (C)** All are features of pre eclampsia, but for the single best answer, by definition, systolic BP more than 160/110 is the specific feature of severe pre eclampsia.

Pre-eclampsia

### Mild

Hypertension arising after 20 weeks gestation with subsequent resolution of the disease by three months postpartum and with the following specific features:

Blood pressure more than 140/90

plus one or more of:

Proteinuria >0.3g/24 hours

Renal insufficiency liver disease

Neurological problems

Hematological disturbances

Fetal growth restriction

### Severe

BP more than 160/110

Plus one more of

CNS :seizure, papilledema, headache, clonus, visual disturbance

GIT: liver & epigastric tenderness, nausea + vomiting! Liver enzymes >70 (mild >40)

Hematology: platelets <100, hemolysis, DIC

CVS: pulmonary edema,

Renal: proteinuria >0.5g/24hrs (>0.3g/24hrs), urine output <500mls

Non-reassuring CTG

**A 2: (D)** Immediate action should be to secure the airway for

- Oxygenation of the patient and the fetus.

- To prevent aspiration.

Termination of seizures is also important to continue the surgery. Anesthetic agent (Propofol) used for induction will terminate the convulsions as well.

Magnesium sulphate is given in pre eclampsia to prevent convulsions, not to treat it.

Midazolam may terminate the convulsions, BUT

- it will not prevent the risk of aspiration.

- It will cross placenta, and so may affect the fetus.

**A 3: (A)** This patient has suffered an amniotic fluid embolism. This is a rare event resulting from amniotic fluid entering the mother's bloodstream via the placental bed of the uterus.

This is an obstetric and anaesthetic emergency with anaphylactic and embolic features. This reaction results in cardiorespiratory collapse and coagulopathy.

Risk factors for developing amniotic fluid embolism include:

- Increased maternal age
- Augmented labor
- Caesarean section
- Instrumental delivery
- Polyhydramnios
- Uterine rupture
- Placental abruption

**A 4: (D)** Each unit of factor VIII transfused is estimated to raise factor VIII levels 2% per kilogram of body weight.

**A 5: (E)** Misoprostol should be 1000 mcg rectally.

When uterine atony is perceived to be a cause

of the bleeding, the following mechanical and pharmacological measures should be instituted, in turn, until the bleeding stops:

- Bimanual uterine compression (rubbing up the fundus) to stimulate contractions
- Ensure the bladder is empty (Foley catheter, leave in place)
- Oxytocin 5 units by slow intravenous injection (may have one repeat dose)
- Ergometrine 0.5 mg by slow intravenous or intramuscular injection (contra-indicated in women with hypertension)
- Oxytocin infusion (40 units at 10 units/h)
- Carboprost 0.25 mg by intramuscular injection repeated at intervals of not less than 15 minutes to a maximum of eight doses (contra-indicated in women with asthma)
- Misoprostol 1000 µg rectally

**A 6: (B)** Sheehan's syndrome (SS) is postpartum hypopituitarism caused by necrosis of the pituitary gland, due to severe hypotension or shock caused by massive hemorrhage during or after delivery. Ischemic pituitary necrosis results in anterior pituitary hormone deficiency. Vasospasm, thrombosis and vascular compression of the hypophyseal arteries are possible causes of the syndrome.

**A 7: (C)** Placenta accreta, percreta pose very high chances of uterine bleeding and may lead to morbidity and mortality during delivery/cesarean section. Hysterectomy may need to be done, if bleeding is not effectively stopped. For an effective management of such case, balloon catheters are placed into the uterine arteries preoperatively. After cesarean delivery, the balloons are inflated if bleeding occurs as a result of placenta accreta. The interventional

radiologist embolizes the uterine arteries if necessary.

**A 8: (D)** Under GA, increasing the halogenated vapour concentration can produce uterine relaxation.

Under spinal/epidural anesthesia, S/L GTN spray or IV 100ug GTN are effectively produce uterine relaxation.

Nitroglycerin provides a rapid onset of reliable smooth muscle relaxation & has short plasma half-life (2-3 min).

Nitroglycerin most likely produces uterine smooth muscle relaxation by releasing nitric oxide; it may require the presence of placental tissue to be effective.

**A 9: (E)** Calcium gluconate is antidote for MgSO<sub>4</sub> toxicity.

**A 10: (D)** This is 'can't intubate, can't ventilate' situation. Both, mother and foetus are at high risk of mortality if oxygenation and delivery are delayed. All other measures are time consuming and high possibility of failure in this emergency situation. Oxygenate the patient with needle cricothyrotomy and deliver the fetus as soon as possible, followed by next step to secure the airway, including FOB, Video assisted devices, retrograde intubation, tracheostomy etc.

### Sources

- Morgan and Mikhail's Clinical Anesthesiology
- Gist RS, Stafford IP, Leibowitz AB et al. Amniotic fluid embolism. *Anaesth Analg* 2009; 108(5): 1599–1602
- RCOG Prevention and Management of Postpartum Haemorrhage. Green-top Guideline No. 52.
- Chestnut's Obstetric Anesthesia 5th ed. 2014.