L03: Eclampsia

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Introduction

Eclampsia is defined as a new onset seizure or coma in a woman with preeclampsia. It is a common cause of maternal and fetal morbidity and mortality. Eclamptic seizures are the result of hypertension in preeclampsia, although the precise mechanism is not well understood.

Essentials

- Risk factors for eclampsia are related to those for preeclampsia. The most common signs and symptoms are hypertension, headache, visual disturbances, and right upper quadrant or epigastric pain, although 25% of women who are affected are asymptomatic.
- Seizures due to eclampsia are commonly associated with an abrupt loss of consciousness. The seizure generally lasts for a few minutes, followed by a gradual return of consciousness over the next 10-20 minutes. Fetal bradycardia is common after a maternal seizure.
- In patients under 20 weeks gestational age, eclampsia and preeclampsia are rare, and other causes of seizures should be investigated. Consider anatomic abnormalities of cerebral origin in women with persistent neurological deficits, and rule out toxins, infection, and electrolyte disturbances.
- Magnesium sulfate is given to prevent a recurrence of seizures, rather than to control the initial episode.
- Delivery is the definitive treatment for eclampsia.

Additional Treatment Information

- Initial assessment should focus on airway protection with adequate oxygenation and ventilation. Roll the patient into a left lateral decubitus position and provide high flow supplemental oxygen.
- Transport urgently to the nearest hospital. Consider bypass to a hospital with C-section capabilities.

General Information

While the pathophysiology of seizures in eclampsia is not well understood, it is believed to result from vasogenic or cytotoxic edema and endothelial dysfunction secondary to abnormal cerebral autoregulation. This results in cerebral hyper- or hypoperfusion stemming from the hypertension.

Interventions

First Responder

- Maintain adequate oxygenation
  - → A07: Oxygen and Medication Administration
  - → B01: Airway Management

Emergency Medical Responder – All FR interventions, plus:

- Transport patient in left lateral position to minimize compression of the inferior vena cava
- Obtain capillary blood glucose measurement
- Transport urgently to nearest hospital. Consider transport to facility with OB/GYN services if not significantly further.
- Consider ACP intercept

Advanced Care Paramedic – All FR, EMR, and PCP interventions, plus:

- Obtain vascular access.
  - → D03: Vascular Access
- CLINICALL CONSULTATION (1-833-829-4099) IS HIGHLY RECOMMENDED
- Magnesium sulfate is the first line treatment for eclampsia. Administer the initial dose of 4 to 6 g intravenously over 20 minutes as a loading dose, followed by 1 to 2 g per hour. Otherwise, 5 g can be given intramuscularly (use bilateral buttocks) followed by 5 g IM every four hours.
  - Cardiac monitoring is required with magnesium administration
  - If seizures persist following the loading dose of magnesium, up to 4 g IV can be given over five minutes. If the patient is still seizing after 20 minutes, consider MIDAZOLam and other possible causes of seizures.
  - Myasthenia gravis is a contraindication for magnesium sulfate as it can lead to a severe myasthenic crisis
  - During long transports, check respiratory rate, patellar reflexes, and where possible, urine output. Discontinue magnesium if patellar reflex is absent, or if respiratory rate is below 12/minute, or muscle weakness, slurred speech, arrhythmia, or CNS depression develops.
  - Consider calcium chloride for magnesium overdose if hemodynamic or respiratory instability develops
  - MIDAZOLam crosses the placental barrier, and may cause adverse effects to the fetus. However, prolonged seizures are life threatening to both the mother and the baby, and so MIDAZOLam should remain an option for seizure control in these cases.

Critical Care Paramedic – All FR, EMR, PCP, and ACP interventions, plus:

- If seizures persist following magnesium administration:
  - Consider phenytoin IV, 1250 mg IV at a rate of 50 mg/min
- Consider antihypertensive to bring diastolic pressure below 110 mmHg and systolic pressure below 160 mmHg:
  - Labetalol: 20 mg IV over 2 minutes followed by infusion at 1-2 mg/min.
    - Maximum dose of 300 mg. Monitor for hypotension and bradycardia; if bradycardia develops but blood pressure remains high, change to hydralazine.
  - Hydralazine: 5 mg IV over 1-2 minutes followed by 5-10 mg IV every 20 minutes until target blood pressure is reached.
    - Maximum dose of 20 mg

Evidence Based Practice

Pre Eclampsia/Eclampsia

References

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3. Marra A, et al. Posterior reversible encephalopathy syndrome: The endothelial hypotheses. 2014. [Link]
4. Norwitz ER. Eclampsia. In UpToDate. 2020. [Link]