

## L03: Eclampsia

Alex Kuzmin

Updated: February 07, 2025

Reviewed: February 05, 2025

### 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. However, 25% of affected patients 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 following 10-20 minutes. Fetal bradycardia is common after a maternal seizure.
- In patients under 20 weeks gestation, eclampsia and preeclampsia are rare; other causes of seizures should be investigated. Consider anatomic abnormalities of cerebral origin in women with persistent neurological deficits. 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. Position the patient into a left lateral decubitus position and provide high flow supplemental oxygen.
- Convey urgently to the nearest hospital. Consider bypass to a hospital with caesarean 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 Administration](#)
  - → [B01: Airway Management](#)

#### Emergency Medical Responder – All FR interventions, plus:

- Convey the patient in left lateral position to minimize compression of the inferior vena cava
- Obtain capillary blood glucose measurement
- Convey urgently to nearest hospital; consider conveyance to facility with OB/GYN services if not significantly further
- Consider intercept with additional resources

#### Primary Care Paramedic – All FR and EMR interventions, plus:

- Consider obtaining vascular access
  - → [D03: Vascular Access](#)

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

- [CliniCall consultation recommended](#) to discuss care planning options.
- [Magnesium Sulfate](#) is the first line treatment for eclampsia
  - Cardiac monitoring is required with magnesium administration
  - Administer the initial dose of 5 g intravenously over 15 minutes as a loading dose, followed by 1 g per hour; otherwise, 5 g can be given intramuscularly (use bilateral buttocks) followed by 5 g IM every four hours
  - Monitor for signs of magnesium toxicity including respiratory rate less than 12/min, muscle weakness, absent patellar reflex, slurred speech or arrhythmias
    - Consider [calcium chloride](#) for magnesium sulfate overdose if hemodynamic or respiratory instability develops
- If the patient is still seizing after 5 minutes, consider [midazolam](#)
  - midazolam crosses the placental barrier and may cause adverse effects on the fetus; however, prolonged seizure activity is life threatening to both the patient and the fetus - 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:
  - [Call ETP prior to antiepileptic](#)
  - 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:
  - [Call ETP prior to antihypertensive](#)
  - [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

Supportive

Neutral

Against

## References

1. Ambulance Victoria. Clinical Practice Guidelines: Ambulance and MICA Paramedics. 2018. [\[Link\]](#)
2. Demir BC, et al. Comparison of magnesium sulfate and mannitol in treatment of eclamptic women with posterior reversible encephalopathy syndrome. 2012. [\[Link\]](#)
3. Marra A, et al. Posterior reversible encephalopathy syndrome: The endothelial hypotheses. 2014. [\[Link\]](#)
4. Norwitz ER. Eclampsia. In UpToDate. 2020. [\[Link\]](#)

