L04: Preeclampsia

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Introduction

Preeclampsia is a multisystem disorder of pregnancy over 20 weeks of gestation that presents with a new onset of hypertension and proteinuria. Hypertension in women less than 20 weeks gestation is considered pre-existing. Preeclampsia is diagnosed when the systolic blood pressure is greater than 140 mmHg, or the diastolic blood pressure greater than 90 mmHg, on at least two occasions, at least four hours apart, and accompanied with proteinuria. A systolic blood pressure above 160 mmHg, or a diastolic above 110 mmHg, is considered a severe finding.

There are multiple risk factors for preeclampsia, including prior family or personal history, age over 40 or below 18, chronic hypertension, obesity, diabetes, multifetal gestation, and renal, autoimmune, or vascular disease.

Essentials

- Hypertension in preeclampsia is caused by placental and maternal vascular dysfunction.
- Preeclampsia is associated with increased fetal and maternal morbidity and mortality.
- Delivery is the definitive treatment.

Additional Treatment Information

- Preeclampsia is an evolving disease with no effective medical treatment other than delivery of the neonate and placenta. Magnesium may provide prophylaxis against seizures. Women with severe features of preeclampsia are usually delivered promptly to prevent maternal and fetal complications.
- The administration of fluid must be done conservatively due to the risk of pulmonary edema.

Referral Information

Pregnant patients who are hypertensive should be preferentially conveyed to an emergency department associated with a labour and delivery unit. The closest emergency department may, however, be preferred if the patient requires initial resuscitation. Clinical pathway decisions should be made with the overall clinical picture in mind and in consultation with CliniCall where any doubt exists (1-833-829-4099).

General Information

- Preeclampsia is the result of microangiopathy (microvascular disease) of the brain, liver, kidney, and placenta. It can lead to pulmonary edema, liver or kidney failure, and cerebral hemorrhage. Early signs and symptoms may include headache, epigastric pain, thrombocytopenia, abnormal liver function, and visual disturbances.
- Though the exact initial cause of preeclampsia is unclear, it is provoked by a placental vascular abnormality, which results in relative placental hypoperfusion. The placental hypoxia results in an alteration of maternal systemic endothelial function; the end result is hypertension and its downstream effects.
- HELLP syndrome is a form of preeclampsia where patients experience hemolysis, elevated liver enzymes, and low platelets.
- Paramedics and EMRs should consider bypassing the closest hospital in favour of a facility with advanced obstetrical facilities. CliniCall consultation is strongly recommended.

Interventions

First Responder

- Provide position of comfort for patient

- Keep patient warm and prevent heat loss
- Provide airway management and oxygenation as required
  - → A07: Oxygen Administration
  - → B01: Airway Management

Emergency Medical Responder – All FR interventions, plus:

- Convey patient in left lateral position to minimize compression of the inferior vena cava
- Treat as eclampsia if any seizures are present
  - → L03: Eclampsia
- Convey to an emergency department with OB/GYN capabilities if conveyance time does not differ significantly and the patient does not require immediate intervention or resuscitation
  - CliniCall consultation recommended if uncertain.

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

- If patient requires IV fluids:
  - → D03: Vascular Access
  - CliniCall consultation recommended to discuss care planning options due to risk of pulmonary edema and potential delay in conveyance.

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

- Consider magnesium sulfate for seizure prophylaxis
  - CliniCall consultation required prior to administration of seizure prophylaxis.
  - See L03: Eclampsia for further dosing guidance

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

- Consider betamethasone for lung maturation
  - Call ETP prior to betamethasone administration

Evidence Based Practice

Pre Eclampsia/Eclampsia

Supportive

Neutral

Against

References

1. Ambulance Victoria. Clinical Practice Guidelines: Ambulance and MICA Paramedics. 2018. [Link]
2. Lain KY, et al. Contemporary concepts of the pathogenesis and management of preeclampsia. 2002. [Link]
3. Norwitz ER. Eclampsia. In UpToDate. 2020. [Link]