1.0 Risk Factors

Level 1 (Declarative Knowledge)

1.1 The learner will be able to state the following most common risk factors for eclampsia without references and with 100% accuracy including:

- Nulliparity
- Family history of preeclampsia
- Preeclampsia in a previous pregnancy
- Smoking
- Diabetes mellitus
- Multiple gestation
- Chronic hypertension
- Obesity
- Low socioeconomic status
- Advanced maternal age (> 35 years-old)
- African-American race

1.1.2 The learner will be able to state the following contraindications/cautions with the use of magnesium with 100% accuracy including:

- Contraindicated with myasthenia gravis,
- Use with caution with ca channel blockers may produce hypotension
- Concomitant use of muscle relaxants can cause prolonged paralysis

1.1.3 The learner will be able to state the following risk factors for magnesium sulfate toxicity:

- decrease uo or cr >1.0
- magnesium level >= decreased dtrs
- magnesium level > = respiratory arrest
- magnesium level > = cardiac arrest

1.1.3 The learner will be able to state treatment for reversal of magnesium toxicity:

- Calcium gluconate 1 gram
- Alert anesthesia staff
- Apply supplemental oxygen if pulse oximetry less than 95%
Level 2 (Simulated Performance)

1.2 The learner will be able recognize the listed risk factors for eclampsia in a simulated context without prompting from others including:

- Nulliparity
- Family history of preeclampsia
- Preeclampsia in a previous pregnancy
- Smoking
- Diabetes mellitus
- Multiple gestation
- Chronic hypertension
- Obesity
- Low socioeconomic status
- Advanced maternal age (> 35 years-old)
- African-American race

1.2.2 The learner will be able to state the following contraindications/cautions with the use of pre-mixed magnesium with 100% accuracy including:

- Contraindicated with myasthenia gravis,
- Use with caution with ca channel blockers may produce hypotension
- Concomitant use of muscle relaxants can cause prolonged paralysis
- Adjust maintenance dose if decrease uo or cr > 1.0

Level 3 (Clinical Performance)

1.3 The learner will be able recognize the listed risk factors for eclampsia during applied patient care without prompting from others including:

- Nulliparity
- Family history of preeclampsia
- Preeclampsia in a previous pregnancy
- Smoking
- Diabetes mellitus
- Multiple gestation
- Chronic hypertension
- Obesity
- Low socioeconomic status
- Advanced maternal age (> 35 years-old)
- African-American race
1.3.2 The learner will be able to state the following contraindications/cautions with the use of magnesium with 100% accuracy including:

- Contraindicated with myasthenia gravis,
- Use with caution with ca channel blockers may produce hypotension
- Concomitant use of muscle relaxants can cause prolonged paralysis
- Adjust maintenance dose if decrease uo or cr >1.0

2.0 Complications

Level 1 (Declarative Knowledge)

2.1 The learner will be able to describe the following potential complications of eclampsia without references and with 100% accuracy:

2.1.1 Maternal complications
- Disseminated intravascular coagulopathy
- Maternal hemorrhage
- Acute renal failure
- Pulmonary edema
- Intracerebral hemorrhage,
- Cardiac arrest
- Liver rupture
- Transient blindness

2.1.2 Fetal complications
- Fetal heart rate decelerations
- Fetal acidosis

Level 2 (Simulated Performance)

2.2 The learner will be able to recognize the occurrence of these complications in a simulated context without prompting from others, with 100% accuracy.

2.2.1 Maternal complications
- Disseminated intravascular coagulopathy
- Maternal hemorrhage
- Acute renal failure
- Pulmonary edema
- Intracerebral hemorrhage,
- Cardiac arrest
Liver rupture
Transient blindness

2.2.2 Fetal complications
• Fetal heart rate decelerations
• Fetal acidosis

Level 3 (Clinical Performance)
2.3 The learner will be able to recognize the occurrence of these complications during applied patient care without prompting from others, with 100% accuracy.

2.3.1 Maternal complications
• Disseminated intravascular coagulopathy
• Maternal hemorrhage
• Acute renal failure
• Pulmonary edema
• Intracerebral hemorrhage,
• Cardiac arrest
• Liver rupture
• Transient blindness

2.3.2 Fetal complications
• Fetal heart rate decelerations
• Fetal acidosis

6.0 TREATMENT
Level 1 (Declarative Knowledge)
6.1.1 The learner will be able to state the relevant interventions during an eclamptic seizure, without references and with 100% accuracy, including the following:

6.1.1.1 Monitoring requirements and interventions
• Maternal pulse oximetry
• Continuous toco and FHR monitoring
• Obtain IV access if it is not available
• Provides supplemental oxygen
• Place indwelling catheter with urimeter for hourly UO

6.1.1.2 Patient positioning and safety
• Patient should be placed to lateral decubitus position
• Rails should be put up on bed and potentially padded
• Have suction available

6.1.1.3 Medications

P. Andreatta, 2010. ACOG Simulation Consortium
6.1.1.3.1 Medications to control seizure
- Magnesium sulfate 6 grams IV over 15-20 minutes (pre-mixed)
- Magnesium sulfate 10 grams IM (5mg in each buttocks) IF NO IV ACCESS
- 

6.1.1.3.2 Medications to control hypertension (if present > 160/110)
- Hydralazine 5-10 mg IV push
- Labetalol 20-40mg IV push

6.1.1.3.3 Medications to prevent recurrent seizures
- Magnesium sulfate continuous IV infusion of 2 grams per hour (pre-mixed)
- Diazepam 5mg IV (not required, but may consider if continued seizures after 4-5 minutes)

1.1.1.4 Calling for additional assistance
- Anesthesia
- Additional nursing personnel (if needed)
- Pediatrics

6.1.2 The learner will be able to state the potential complications of an eclamptic seizure, without references, and with 100% accuracy, including the following:

6.1.2.1 Maternal complications
- Disseminated intravascular coagulopathy
- Maternal hemorrhage
- Acute renal failure
- Pulmonary edema
- Intracerebral hemorrhage,
- Cardiac arrest
- Liver rupture
- Transient blindness

6.1.2.2 Fetal complications
- Fetal heart rate decelerations
- Fetal acidosis

6.1.3 The learner will be able to state how to manage the anesthesia needs of the patient, without references and with 100% accuracy, including the following:
Have anesthesia available to monitor the patient’s airway

6.1.4 The learner will be able to state how to manage the patient after the seizure has stopped, without references and with 100% accuracy, including the following:
- Administer magnesium sulfate (2gm/hr IV continuous infusion) (pre-mixed)
- Administer medications to control hypertension if severe hypertension present (> 160/110)
• Continuously monitor the fetal heart rate and consider intervention (delivery by cesarean section) if decelerations do not resolve within approximately 10-15 minutes)

Level 2 (Simulated Performance)

6.2.1 The learner will be able to demonstrate the following knowledge in a simulated context, without references and with 100% accuracy, including the following:

6.2.1.1 Monitoring requirements and interventions
• Maternal pulse oximetry
• Continuous toco and FHR monitoring
• Obtain IV access if it is not available
• Provides supplemental oxygen

6.2.1.2 Patient positioning and safety
• Patient should be placed to lateral decubitus position
• Rails should be put up on bed and potentially padded

1.1.1.3 Medications
6.2.1.3.1 Medications to control seizure
• Magnesium sulfate 6 grams IV over 15-20 minutes (pre-mixed)
• Magnesium sulfate 10 grams IM (5mg in each buttocks) IF NO IV ACCESS
• Diazepam 5mg IV (not required, but may consider if continued seizures after 4-5 minutes)

6.2.1.3.2 Medications to control hypertension (if present > 160/110)
• Hydralazine 5-10 mg IV push
• Labetalol 20-40mg IV push

6.2.1.3.3 Medications to prevent recurrent seizures
• Magnesium sulfate continuous IV infusion of 2 grams per hour (pre-mixed)

1.1.1.2 Calling for additional assistance
• Anesthesia
• Additional nursing personnel (if needed)
• Pediatrics

6.2.2 The learner will be able to discuss the potential complications of an eclamptic seizure during a simulated scenario, without references, and with 100% accuracy, including the following:

6.2.2.1 Maternal complications
• disseminated intravascular coagulopathy
• Maternal hemorrhage
• Acute renal failure
• Pulmonary edema
• Intracerebral hemorrhage,
• Cardiac arrest
• Liver rupture
• Transient blindness

6.2.2.2 Fetal complications
• Fetal heart rate decelerations
• Fetal acidosis

6.2.3 During a simulated scenario, the learner will be able to state how to manage the anesthesia needs of the patient, without references and with 100% accuracy, including the following:
• Have anesthesia available to monitor the patient’s airway

6.2.4 During a simulated scenario the learner will be able to demonstrate how to manage the patient after the seizure has stopped, without references and with 100% accuracy, including the following:
• Administer magnesium sulfate (2gm/hr IV continuous infusion) (pre-mixed)
• Administer medications to control hypertension if severe hypertension present (> 160/110)
• Continuously monitor the fetal heart rate and consider intervention (delivery by cesarean section) if decelerations do not resolve within approximately 10-15 minutes)
• Plan to move towards delivery (route of delivery dependent on gestational age / cervical examination / fetal status)

Level 3 (Clinical Performance)

6.3.1 The learner will be able to demonstrate the following knowledge in a clinical context, without references and with 100% accuracy, including the following:

6.3.1.1 Monitoring requirements and interventions
• Maternal pulse oximetry
• Continuous toco and FHR monitoring
• Obtain IV access if it is not available
• Provides supplemental oxygen

6.3.1.2 Patient positioning and safety
• Patient should be placed to lateral decubitus position
• Rails should be put up on bed and potentially padded

1.1.1.3 Medications
6.3.1.3.1 Medications to control seizure
• Magnesium sulfate 6 grams IV over 15-20 minutes (pre-mixed)
6.3.1.3.2 Medications to control hypertension (if present > 160/110)
- Hydralazine 5-10 mg IV push
- Labetalol 20-40mg IV push

6.3.1.3.3 Medications to prevent recurrent seizures
- Magnesium sulfate continuous IV infusion of 2 grams per hour (pre-mixed)

1.1.1.4 Calling for additional assistance
- Anesthesia
- Additional nursing personnel (if needed)
- Pediatrics

6.3.2 The learner will be able to discuss the potential complications of an eclamptic seizure during a clinical scenario, without references, and with 100% accuracy, including the following:

6.3.2.1 Maternal complications
- disseminated intravascular coagulopathy
- Maternal hemorrhage
- Acute renal failure
- Pulmonary edema
- Intracerebral hemorrhage,
- Cardiac arrest
- Liver rupture
- Transient blindness

6.3.2.2 Fetal complications
- Fetal heart rate decelerations
- Fetal acidosis

6.3.3 During a clinical scenario, the learner will be able to state how to manage the anesthesia needs of the patient, without references and with 100% accuracy, including the following:
- Have anesthesia available to monitor the patient’s airway

6.3.4 During a clinical scenario the learner will be able to demonstrate how to manage the patient after the seizure has stopped, without references and with 100% accuracy, including the following:
- Administer magnesium sulfate (2gm/hr IV continuous infusion) (pre-mixed)
- Administer medications to control hypertension if severe hypertension present (> 160/110)
• Continuously monitor the fetal heart rate and consider intervention (delivery by cesarean section) if decelerations do not resolve within approximately 10-15 minutes
• Plan to move towards delivery (route of delivery dependant on gestational age / cervical examination / fetal status)

7.0 Teamwork
Level 1 (Declarative Knowledge)
7.1 The learner will be able to describe the physician’s role and expected communication strategies for working with assistants to treat an eclamptic seizure, without external references and with 100% accuracy, including:
  • Assume a leadership role for patient management
  • Communicate need to position the patient to prevent injury during the seizure
  • Strategically use assistants to the best advantage
  • Provide specific directions to assistants
  • Specify medications needed to control eclamptic seizure and treat hypertension
  • Use closed-loop communication
  • Respond to requests/questions from assistants promptly and professionally

Level 2 (Simulated Performance)
7.2 The learner will be able to perform the physician’s role and expected communication strategies for working with assistants to manage an eclamptic seizure in a simulated context, without external references and with 100% accuracy, including:
  • Assume a leadership role for patient management
  • Communicate planned course of operation to assistants
  • Strategically use assistants to the best advantage
  • Provide specific directions to assistants
  • Specify medications needed to control eclamptic seizure and treat hypertension
  • Use closed-loop communication
  • Respond to requests/questions from assistants promptly and professionally

Level 3 (Clinical Performance)
7.3 The learner will be able to perform the physician’s role and expected communication strategies for working with assistants to treat an eclamptic seizure during applied patient care, without external references and with 100% accuracy, including:
  • Assume a leadership role for patient management
  • Communicate need to position the patient to prevent injury during the seizure
  • Strategically use assistants to the best advantage
• Provide specific directions to assistants
• Specify medications needed to control eclamptic seizure and treat hypertension
• Use closed-loop communication
• Respond to requests/questions from assistants promptly and professionally

8.0 Post-Treatment Patient Management

Level 1 (Declarative Knowledge)

8.1 The learner will be able to describe what should be communicated to a patient about potential complications and additional treatment after an eclamptic seizure, without references or prompts from others, and with 100% accuracy, including the following:
• Post delivery orders to include
  ▪ Duration of the use of magnesium
  ▪ Frequency of monitoring of labs, uo, and bp measurement
• Use patient-friendly language
• Explain that delivery is necessary regardless of gestational age (route of delivery dependent on clinical situation)
• Explain that magnesium sulfate will be given for seizure prophylaxis
• Ask if the patient/partner have any questions
• Respond to questions
• Inform patient/partner about next steps and follow-up care

Level 2 (Simulated Performance)

8.2 The learner will be able to communicate with the simulated patient about potential complications and additional treatment needed after a simulated eclamptic seizure, without references or prompts from others, and with 100% accuracy, including the following:
• Use patient-friendly language
• Explain that delivery is necessary regardless of gestational age (route of delivery dependant on clinical situation)
• Explain that magnesium sulfate will be given for seizure prophylaxis
• Ask if the patient/partner have any questions
• Respond to questions
• Inform patient/partner about next steps and follow-up care

Level 3 (Clinical Performance)

8.3 The learner will be able to communicate with the patient about potential complications and additional treatment needed after an eclamptic seizure, without references or prompts from others, and with 100% accuracy, including the following:
• Use patient-friendly language
• Explain that delivery is necessary regardless of gestational age (route of delivery dependant on clinical situation)
• Explain that magnesium sulfate will be given for seizure prophylaxis
• Ask if the patient/partner have any questions
• Respond to questions
• Inform patient/partner about next steps and follow-up care