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Education

Supporting Documents/Resources | Maternal Mortality & Morbidity Series

The following materials were provided for educational purposes by **Frank R. Kolucki**, Jr. M.D., FACOG, Chairman of the Department, Obstetrics & Gynecology, Moses Taylor Hospital, in support of the Maternal Mortality and Morbidity four-part series offered via live webinar for HealthTrust members.

PART 1 | "High Reliability & Safety in Obstetrics: A Life-saving Approach" | Nov. 29, 2018

PART 2 | "Code Crimson: Massive Transfusion Protocol" | Jan. 11, 2019

PART 3 | "Four Types of Hypertension in Obstetrics" | Feb. 15, 2019

PART 4 | "Thromboembolism" | March 28, 2019

The checklists that follow can be found at ACOG District II website:

https://www.acog.org/About-ACOG/ACOG-Districts/District-II/SMI-Severe-Hypertension

EXAMPLE

Eclampsia Checklist

- ☐ Call for Assistance
- ☐ Designate
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Protect airway and improve oxygenation:
  - ◯ Maternal pulse oximetry
  - ◯ Supplemental oxygen (100% non-rebreather)
    - ☐ Lateral decubitis position
    - ☐ Bag-mask ventilation available
    - ☐ Suction available
- ☐ Continuous fetal monitoring
- ☐ Place IV; Draw preeclampsia labs
- ☐ Ensure medications appropriate given patient history
- ☐ Administer magnesium sulfate
- ☐ Administer antihypertensive therapy if appropriate
- ☐ Develop delivery plan, if appropriate
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
- Ⓐ symptoms at least once a week, or
- Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
- Ⓒ any history of intubation or hospitalization for asthma.

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ACOG
THE AMERICAN CONGRESS OF OBSTETRICIANS AND GYNECOLOGISTS
District II

MAGNESIUM SULFATE

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:
- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:
- ☐ 10 grams of 50% solution IM (5 g in each buttock)

ANTIHYPERTENSIVE MEDICATIONS

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

Note: *If persistent seizures, consider anticonvulsant medications and additional workup*

ANTICONVULSANT MEDICATIONS

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium)**: 5-10 mg IV q 5-10 min to maximum dose 30 mg

FOR PERSISTENT SEIZURES

- ☐ Neuromuscular block and intubate
- ☐ Obtain radiographic imaging
- ☐ ICU admission
- ☐ Consider anticonvulsant medications

EXAMPLE

Hypertensive Emergency Checklist

Hypertensive Emergency:

- Two severe BP values (≥160/110) taken 15-60 minutes apart. Values do not need to be consecutive.
- May treat within 15 minutes if clnically indicated

- ☐ Call for Assistance
- ☐ Designate:
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Ensure medications appropriate given patient history
- ☐ Administer seizure prophylaxis (magnesium sulfate first line agent, unless contraindicated)
- ☐ Antihypertensive therapy within 1 hour for persistent severe range BP
- ☐ Place IV; Draw preeclampsia labs
- ☐ Antenatal corticosteroids (if <34 weeks of gestation)
- ☐ Re-address VTE prophylaxis requirement
- ☐ Place indwelling urinary catheter
- ☐ Brain imaging if unremitting headache or neurological symptoms
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

Magnesium Sulfate

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:

- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:

- ☐ 10 grams of 50% solution IM (5 g in each buttock)

Antihypertensive Medications

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

Note: *If first line agents unsuccessful, emergency consult with specialist (MFM, internal medicine, OB anesthesiology, critical care) is recommended*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium)**: 5-10 mg IV q 5-10 min to maximum dose 30 mg

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Postpartum Preeclampsia Checklist

Emergency Department

Triage patients less than 6 weeks postpartum as follows:

- ☐ Core evaluation and assessment
- ☐ If BP ≥ 160/110 or 140/90 with:
  - Unremitting headaches
  - Visual disturbance
  - Epigastric pain
- ☐ Begin stabilization
- ☐ Call for Obstetric consult immediately
- ☐ OBS contact documented
- ☐ Call MFM/MICU consult immediately for refractory blood pressure
- ☐ Labs should include:
  - CBC
  - PT
  - PTT
  - Fibrinogen
  - CMP
  - Uric Acid
  - Hepatic function panel
  - Type and Screen
- ☐ Initiate Intravenous Access
- ☐ Assess neurologic status
  - LOC/arousal/orientation/behavior
  - Deep tendon reflexes
  - Speech
- ☐ Assess vital signs including oxygen saturation
- ☐ Assess complaints and report; unremitting headaches, epigastric pain, visual disturbances, speech difficulties, lateralizing neuro signs
- ☐ Place Foley catheter
- ☐ Strict I&O report output less than 30 ml/hr for 2 hours
- ☐ Plan brain imaging studies if:
  - Unremitting headache
  - Focal signs and symptoms
  - Uncontrolled high blood pressure
  - Lethargy
  - Confusion
  - Seizures
  - Abnormal neurologic examination

Initial medications

- ☐ Load 4-6 grams 10% magnesium sulfate in 100 ml solution IV over 20 minutes
- ☐ Magnesium sulfate on infusion pump
- ☐ Magnesium sulfate and pump labeled
- ☐ Magnesium sulfate 10 grams of 50% solution IM (5 grams in each buttock) if no IV access
- ☐ Magnesium sulfate maintenance 1-2 grams/hour continuous infusion

Contraindications: pulmonary edema, renal failure, myasthenia gravis

If magnesium sulfate is contraindicated: Keppra 500 mg PO or IV every 12 hours

Antihypertensive medications

- **Labetalol** (20, 40, 80, 80 mg IV* over 2 minutes, escalating doses, repeat every 10 minutes or 200 mg orally if no IV access); avoid in asthma or heart failure, can cause neonatal bradycardia
- **Hydralazine** (5-10 mg IV* over 2 minutes, repeat in 20 minutes until target blood pressure is reached)
- Repeat blood pressure every 10 minutes during administration

*** Maximum cumulative IV administered doses should not exceed 25 mg hydralazine; 220 mg labetalol in 24 hours.**