

Obstetrical Assessment and Common Complications

DOCUMENTATION

Complete and document all other systematic assessments in CCTC AI record and 24 hour flow sheet. Neurological and spinal cord test for motor and sensory function should be included for all post partum patients until normal and for all obstetrical patients with hypertension/preeclampsia/eclampsia/HELLP or magnesium sulphate infusions.

Pregnancy increases the risk for thromboembolic disease and stroke. All hypertensive disorders increase risk for multiple organ involvement with cardiorespiratory and neurological complications (including hypertension, preeclampsia, eclampsia and HELLP). Hypertensive disorders of pregnancy can develop up to 6 weeks post partum.

If fetal monitoring is being performed, OBCU nurses will complete the assessment and document fetal heart rate and other assessment findings in their own flow sheet.

Gravida: the total number of times a patient has been pregnant, regardless of the outcome or age of fetus at outcome. Multiple births count as one.

Para: Number of times a woman has given birth where gestational age is greater than 20 weeks, regardless of outcome. Multiple births count as one.

TPAL:

TERM: Number of births at or beyond 37 weeks gestation

Preterm: Number of births at gestation age greater than 20 weeks but less than 37 weeks

Abortus: Number of losses (elective or spontaneous) at a gestation age of less than 20 weeks.

Live: Number of living children

Hypertensive Disorders of Pregnancy

Classical preeclampsia: Caused by abnormal development of placenta blood supply (abnormal placentation) with resistant placental blood vessels. Hypertension develops to increase placental blood flow through insufficient blood vessels.

Maternal preeclampsia: Increasingly more common and is due to maternal risk factors including obesity and diabetes.

Gestational Hypertension: SBP > 140/DBP > 90 that develops after 20 weeks of pregnancy and persists for 6-12 weeks post partum

Chronic Hypertension: SBP > 140/DBP > 90 that is present before 20 weeks or persists beyond 12 weeks post partum

Treatment of Hypertension:

Treat to keep SBP < 160 and DBP < 110. Avoid aggressive or rapid lower as this may reduce placental blood flow (similar to thinking about cerebral perfusion pressure).

Antihypertensives in pregnancy:

- Methyldopa (has longest safety profile)
- Nifedipine (preferred as it is more effective than oral labetalol and usually as effective as IV labetalol with less risk for hypotension)
- Labetolol IV for crisis
- Hydralazine (can cause hypotension and tachycardia)
- Sodium nitroprusside
- ASA started after 16 weeks for all high risk patients

Preeclampsia: hypertension during pregnancy with evidence of organ dysfunction (which may include new and unexplained protein in urine or any of the following:

- **Headache**
- **Visual disturbances**
- Neurological disorders including stroke
- Hyperreflexia (is not necessarily predictive of seizure)
- Chest pain, dyspnea, cardiomyopathy
- Creatinine > 100 or urinary protein > 300 mg/24 hours or urine protein/creatinine ≥ 30
- Elevated urate (marker of inflammation)
- **Reflexes; hyperreflexia and clonus is a sign of preeclampsia. Clonus may predict eclampsia**

Eclampsia: preeclampsia with seizure

- Seizures usually occur without an aura
- Hypertension is not severe in 20% of cases
- Edema can be absent in 30% of cases
- Proteinuria may be absent in 20% of cases
- Hyperreflexia is not predictive of seizure
- Headache or visual changes most frequent precipitating event
- **Treatment of choice for seizures is magnesium sulphate**
- **For refractory seizures, can add benzodiazapines**
- **Always consider other cause for seizure as preeclamptic patients are at increased risk for a variety of neurological complications. TREAT STROKE DURING PREGNANCY THE SAME AS NON PREGNANT; mother should be considered for all brain saving interventions.**

HELLP (hemolysis, elevated liver enzymes and low platelets of pregnancy)

- Hemolysis on blood smear (helmet cells and schistocytes)
- Elevated liver enzymes (transaminase > 2 times normal)
- Low platelets
- May be in conjunction/progression of preeclampsia
- Corticosteroids may be considered to reduce maternal morbidity if platelets are < 50,000 but are not clearly beneficial.

Important symptoms of HELLP:

- Severe nausea and vomiting
- Right upper quadrant pain (usually under the ribs on the right side or shoulder pain that radiates from liver)

DEFINITIVE TREATMENT FOR PREECLAMPSIA, ECLAMPSIA AND HELLP IS DELIVERY.

CAN DEVELOP UP TO 6 WEEKS POST PARTUM.

Maternal seizure prophylaxis and Management with Magnesium Sulphate.

Treatment of choice for preeclampsia (to prevent eclampsia) and eclampsia

- 4 g loading dose IV
- 2 g/hour as an infusion with delivery as soon as possible
- Therapeutic serum magnesium level is 1.7-3.5 mmol/L; notify OBCU if greater than 3.5

PRETERM BIRTH

Steroids

- Within 1 week of anticipated preterm delivery birth where gestational age is < 34 weeks
- 12 mg betamethasone 12 mg Intramuscularly Q 24 hours X 2 doses
- Given to mature neonatal lungs and develop neonatal surfactant
- Giving more than 1 week before delivery can cause baby lungs to mature instead of grow
- Increases maternal risk for hyperglycemia

Magnesium Sulphate for Neonatal Neuroprotection

- Magnesium sulphate is given as a bolus dose for imminent preterm birth where gestational age is less than 32 weeks 0 days
- Given at 4 g bolus and 1 g/hour infusion until delivery or to a maximum of 24 hours
- Believed to provide neonatal neurological protection

Monitoring During Magnesium Sulphate Administration:

- Reflexes (magnesium toxicity causes decreased reflexes/loss of deep tendon reflexes)
- Monitor cardiovascular system as magnesium toxicity can cause bradyarrhythmias, QT prolongation and wide QRS and lead to cardiorespiratory arrest

Measurement of magnesium levels will facilitate patient care management and determine if adjustments in dosage is required:

Magnesium concentration (mmol/L)	Effects
0.8 – 1.0	Normal plasma level
1.7 – 3.5	Therapeutic range
2.5 – 5.0	ECG changes (P-Q interval prolongation, widen QRS complex)
4.0 – 5.0	Reduction in deep tendon reflexes
> 5.0	Loss of deep tendon reflexes
> 7.5	Sinoatrial and atrioventricular blockade. Respiratory paralysis and CNS depression
> 12	Cardiac Arrest

MAGNESIUM SULPHATE TOXICITY ANTIDOTE: Calcium Chloride

Post Partum Hemorrhage

- Most important assessment is rate of vaginal blood loss
- Increased blood volume of pregnancy can mask hemorrhagic shock
- Mild drop in BP is associated with 1000 to 1500 ml blood loss
- SBP 70-80 associated with loss of 1500 to 2000 ml loss
- Severe hypotension develops at 2000 to 3000 ml loss
- A distended bladder due to catheter flow obstruction can cause uterine atony and bleeding
- **Give fibrinogen early** (e.g. cryoprecipitate); suggest as soon as patient requires blood transfusion as it requires thawing

Five T's of Post Partum Hemorrhage

TONE (decreased uterine tone and contraction occurs with rapid birth, multipara, polyhydramnios or large babies, some medications, fibroids, abnormal placenta and infection).

During pregnancy or in labour, a rigid uterus or one that does not relax during contraction is an obstetrical emergency and suggests hemorrhage/possible abruption.

TISSUE (retained products of conception)

TRAUMA (tears, lacerations, traumatic injury)

THROMBIN (coagulopathy): give fibrinogen early and ensure 4 units of RBCs are matched with equal units of plasma and 1 pool of platelets.

THERAPEUTIC ANTICOAGULATION: Increased number of patients are on anticoagulation

TREATMENT FOR POST PARTUM HEMORRHAGE:

- Ensure bladder is empty
- Bimanual uterine massage (cup top and bottom of uterus to increase tone and express clots)
- Examination for lacerations
- OR for D&C
- Uterine tamponade balloon (Bakri)
- Interventional radiology to ablate uterine arteries
- Exploratory laparotomy, packing
- Hysterectomy

Pharmacological:

- Oxytocin is the first line treatment and may given to prevent bleeding due to atony of uterus or induction of labour
- A single dose of longer acting oxytocin type drug (Carbytocin) is given following C-section to reduce bleeding risk
- If oxytocin infusion is insufficient to stop bleeding, second line drugs are usually added and may include:
 - Misoprostil PO/SL/rectal
 - Hemabate
 - Ergonovine
 - CONTRAINDICATED IN HYPERTENSION (vasoconstrictor)
 - Tranexamic Acid

Rh Negative Mothers:

Exposure of an Rh (D) Negative mother to Rh (D) Positive blood causes Rh (D) antibodies to develop. If an Rh Negative mother has an exposure to Rh Positive blood, antibodies that develop can harm future fetuses and can be associated with fetal demise.

Rh Immune Globulin prevents the development of Rh (D) antibodies. It is given to Rh negative mothers:

- At about 28 weeks when the father is Rh (D) Positive or Unknown
- Within 72 hours of delivery of an Rh (D) Positive newborn
- Within 72 hours of spontaneous or induced abortion, amniocentesis, chorionic villus sampling, ruptured tubal pregnancy, abdominal trauma or trans-placental hemorrhage (unless the blood type of the fetus or father are confirmed to be Rh (D) negative)
- Prevents Hemolytic Disease of the fetus/newborn
- All female children and women under 45 who are exposed to Rh Positive blood products during transfusion should also be treated

Following birth, the baby's blood type is collected by NICU and available in Cerner. If the baby's blood group is not available, contact NICU to ensure it was collected so that maternal treatment can occur as required.

November 26, 2020 Brenda Morgan, CNS, CCTC