

CASE STUDY - INDUCTION OF LABOR

A G3, P2 patient at 41 weeks gestation is admitted for induction of labor. Assessment data reveals: cervix dilated 2 cm, 40% effaced, -2 station, cervix firm, and membranes intact. The patient's last baby was delivered at 40 weeks and weighed 9 pounds. The physician has ordered Prostaglandin administration the evening before Oxytocin in the morning.

1. What is the indication for induction of labor?

Patient is post-term which is an indication for induction of labor.

2. Why did the physician order prostaglandins the evening before the induction?

Prostaglandin is used for cervical ripening. Safe interval has not yet been established so it is recommended to delay oxytocin administration for 6 to 12 hours after total intracervical dose of 1.5mg or 2.5 mg vaginal dose recommended.

3. What tests or evaluation should be performed prior to the induction?

Evaluate the mother's health and the status of the cervix. Also tests to check on the fetus health, gestational age, weight, size, and position in the uterus.

4. What are the nursing considerations when administering an Oxytocin infusion?

Assess the FHR for at least 20 minutes before induction to identify fetal well-being. Perform Leopold's maneuvers, a vaginal examination, or both to verify a cephalic fetal presentation. If indeterminate or abnormal FHR patterns are identified or if fetal presentation is other than cephalic, notify the physician and do not begin induction until an ultrasound is done to ascertain fetal presentation and fetal well-being.

Observe UA for establishment of effective labor pattern: contraction frequency every 2 to 3 minutes, duration of 40 to 90 seconds. Observe for excessive UA: contractions less than 2 minutes apart, rest interval shorter than 60 seconds in first-stage labor and 45 to 50 seconds in second-stage labor, duration longer than 120 seconds, or an elevated resting tone firm by palpation or greater than 20 to 25 mm Hg (if measured with an intrauterine pressure catheter).

Observe FHR for patterns such as tachycardia, bradycardia, decreased variability, and pathologic (late, variable, or prolonged) decelerations. If uterine tachysystole or FHR patterns as indicated previously occur, intervene to reduce UA and increase fetal oxygenation: stop the oxytocin infusion, increase the rate of nonadditive solution, position the woman in a side-lying position, and administer oxygen by nonrebreather face mask at 10 L/min. Notify the provider of adverse reactions, nursing interventions, and patient response. Record the maternal blood pressure, pulse rate, and respirations every 30 to 60 minutes or with each dose increase. Record intake and output.

When providing care during cervical ripening and labor induction or augmentation, the nurse observes the woman and fetus for complications and takes corrective actions if abnormalities are noted. The nurse has a great responsibility when administering uterine stimulants to a pregnant woman. The nurse decides when to start, change, and stop an oxytocin infusion using the facility's protocols and medical orders. Facility policies related to oxytocin must clearly support correct nursing and medical actions.

CASE STUDY - Diabetes in Pregnancy

A 30-year-old, G2, P1, is in her 10th week of pregnancy. Her first baby was stillborn at 32 weeks, so she is very worried about this pregnancy. Initial lab work obtained two weeks ago included testing for diabetes, due to the patient's history of a stillborn. The physician explains during the first prenatal visit there is a concern for diabetes due to an elevated glucose level. The nurse realizes patient education regarding diabetes, the effects of diabetes on both the patient and baby and how to manage diabetes is essential.

1. Discuss maternal risks associated with diabetes and pregnancy.

Increased Maternal Risks	
Hypertension, preeclampsia	Unknown but increased even without renal or vascular impairment
Urinary tract infections	Increased bacterial growth in nutrient-rich urine
Ketoacidosis (risk for mother and fetus)	Uncontrolled hyperglycemia or infection; most common in women with type 1 diabetes
Labor dystocia, cesarean birth, uterine atony with hemorrhage after birth	Hydramnios secondary to fetal osmotic diuresis caused by hyperglycemia; uterus is overstretched
Birth injury to maternal tissues (hematoma, lacerations)	Fetal macrosomia causing difficult birth

2. Discuss fetal-neonatal risks associated with diabetes and pregnancy.

Increased Fetal and Neonatal Risks	
Congenital anomalies	Maternal hyperglycemia during organ formation in first trimester
Perinatal death	Poor placental perfusion because of maternal vascular impairment, primarily in women with type 1 diabetes
Macrosomia (>4000 g)	Fetal hyperglycemia stimulating production of insulin to metabolize carbohydrates; excess nutrients transported to fetus
Intrauterine fetal growth restriction	Maternal vascular impairment
Preterm labor, premature rupture of membranes, preterm birth	Overdistention of uterus caused by hydramnios and large fetal size at preterm gestation
Birth injury	Large fetal size; shoulder dystocia or other difficult delivery
Hypoglycemia	Neonatal hyperinsulinemia after birth when maternal glucose is no longer available (but insulin production remains high)
Polycythemia	Fetal hypoxemia stimulating erythrocyte production
Hyperbilirubinemia	Breakdown of excessive red blood cells after birth
Hypocalcemia	Maternal relative hyperparathyroidism
Respiratory distress syndrome	Delayed maturation of fetal lungs; inadequate production of pulmonary surfactant; slowed absorption of fetal lung fluid

3. What educational topics should be covered to assist the patient in managing her diabetes?

Diet, monitoring blood glucose levels, insulin therapy, fetal surveillance, signs and symptoms of hyperglycemia and hypoglycemia.

4. What classification (SGA, AGA, LGA) will this patient's baby most likely be classified as? Discuss your answer.

Vascular impairment may be caused by complications of diabetes such as vasoconstriction, which occurs in preeclampsia or because of the disease process of diabetes. Impaired placental perfusion decreases supplies of glucose and oxygen delivered to the fetus. As a result, the infant

is likely to be small for gestational age (SGA) or large for gestational age (LGA) depending on the placental vascular supply.

CASE STUDY - Pregnancy Induced Hypertension

A single 17-year-old patient Gr 1 P0 at 34 weeks gestation comes to the physician's office for her regular prenatal visit. The patient's assessment reveals BP 160/110, DTR's are 3+ with 2 beats clonus, weight gain of 5 pounds, 3+ pitting edema, facial edema, severe headache, blurred vision, and 3 + proteinuria.

Patient's history – single, lives with her parents, attending high school, works at local grocery store in the evenings as a cashier, began prenatal care at 18 weeks, has missed two of her regularly scheduled appointments for prenatal care, never eats breakfast, snacks for lunch, and eats dinner after she gets off work at 10:00 pm.

1. What disease process is this patient exhibiting? What in the assessment supports your concern?

Chronic hypertension with superimposed preeclampsia:

- **New-onset proteinuria after 20 weeks of gestation.**
- **Sudden increase in proteinuria in women with proteinuria present before 20 weeks.**
- **Development of headache, epigastric pain, or vision changes.**

2. What in the patient's history places her at risk for Pregnancy-Induced Hypertension?

First pregnancy, age, and diet

3. Describe how Pregnancy-Induced Hypertension affects each organ and how these effects are manifested.

System	Maternal Complications
Cardiovascular	Decreased intravascular volume Severe hypertension including hypertensive crisis Pulmonary edema Congestive heart failure Future cardiac disease and dysfunction
Pulmonary	Pulmonary edema Hypoxemia/acidemia
Renal	Oliguria Acute renal failure Impaired drug metabolism and excretion
Hematologic	Hemolysis Decreased oxygen-carrying capacity Thrombocytopenia Coagulation defects (disseminated intravascular coagulation) Anemia
Neurologic	Seizures Cerebral edema Intracerebral hemorrhage Stroke Visual disturbances, blindness
Hepatic	Hepatocellular dysfunction Hepatic rupture Hypoglycemia Coagulation defects Impaired drug metabolism and excretion
Uteroplacental	Abruption Decreased uteroplacental perfusion

4. What will the patient's treatment consist of?

Activity restriction, monitoring of blood pressure, weight, urinalysis, fetal assessment, and diet. If patient has severe preeclampsia, antihypertensive medications will be prescribed by physician.

5. What is the drug of choice for this condition? What other medication(s) might be ordered for this patient?

**Labetalol, Hydralazine, Nifedipine could be prescribed.
Magnesium Sulfate may also be ordered prevent seizures.**

6. What are the Nursing considerations when administering the drug of choice? (Side effects & medication administration guidelines)

- **Labetalol—Has less maternal tachycardia and fewer adverse effects; contraindicated in patients with asthma, heart disease, or CHF; associated with hypoglycemia and small for gestational age infants.**
- **Hydralazine (Apresoline)—Higher doses are associated with maternal hypotension, headaches, and fetal distress**
- **Nifedipine—May be associated with reflex tachycardia and headaches; because of mechanism of action, a synergistic effect with magnesium sulfate may result in hypotension and neuromuscular blockade.**

Caution is essential when antihypertensive medications are given to the woman receiving magnesium sulfate because hypotension may result, reducing placental perfusion