

## 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?

The indication for the induction of labor is because the pregnancy is near post term.

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

The physician ordered prostaglandin because it is a drug that is used to make the cervix ripe (soften) and make it more likely to dilate with the forces of labor.

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

Cervical assessment estimates whether the cervix is favorable for induction. The Bishop Scoring System is used to estimate cervical readiness for labor with five factors. The provider will evaluate the mother's health and the baby's health. The provider will also confirm gestational age, weight, size, and the position of the baby in the uterus.

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

The nurse is responsible for observing the woman and fetus for complications and takes corrective actions if abnormalities are noted. The nurse decides when to start, change, and stop an oxytocin infusion using the facility protocols. The nurse should observe fetal response because oxytocin stimulates uterine contractions, and they may become too frequent and can cause tachysystole. The nurse should also observe maternal response for excessive UA that may reduce fetal oxygenation and can contribute to rupture.

## CASE STUDY - Diabetes in Pregnancy

A 30-year-old, G2, P1, is in her 10<sup>th</sup> 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 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 it is essential.

1. Discuss maternal risks associated with diabetes and pregnancy.

Hypertension and preeclampsia: unknown but increased even without renal or vascular impairment

UTI: Increased bacterial growth in nutrient rich urine.

Ketoacidosis: Uncontrolled hyperglycemia or infection; most common in women with type 1 DM

Labor Dystocia, C-section, & uterine atony after birth: Hydramnios secondary to fetal osmotic diuresis caused by hyperglycemia; uterus is overstretched

Birth Injury to maternal tissues (hematoma or lacerations): Fetal macrosomia causing difficult birth

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

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

Macrosomia: fetal hyperglycemia stimulating production of insulin to metabolize carbohydrates; excess nutrients transported to fetus

Intrauterine fetal growth restriction: maternal vascular impairment

Preterm labor, PROM, preterm birth: overdilatation 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 no longer available

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 surfactant

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

Teach about diet, exercise, blood glucose monitoring, how to manage hypoglycemia and hyperglycemia.

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

The baby will most likely be LGA because the combination of high blood glucose levels from the mother and high insulin levels in the fetus results in large deposits of fat which causes the fetus to grow excessively large.

## **CASE STUDY - Pregnancy Induced Hypertension**

A single 17-year-old patient Gr 1 Pr 0 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?

The disease process that the patient is experiencing is severe preeclampsia. The supports are the blood pressure of 160/10, proteinuria of 3+, blurred vision, severe headache, peripheral edema, and 2 beat clonus.

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

The patient is young in age, and this is the mother's first pregnancy.

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

With high blood pressure, there is an increase in the resistance of blood vessels. This may hinder blood flow in many different organ systems in the expectant mother including the liver, kidneys, brain, uterus, and placenta.

Vascular bed is affected because there is an increased release of cellular fibronectin. Cardiovascular and pulmonary are affected because of the vascular narrowing. Renal is affected because there is a slight decrease in glomerular size. Hepatic is affected because changes are consistent with hemorrhage into hepatic tissue. Hematologic is affected because there is an increase in platelet destruction. The CNS is affected because it can cause an increase involvement like cerebral edema, headache, and dizziness.

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

Antepartum management (improve placental blood flow and fetal oxygenation and prevent seizures), bed rest and fetal monitoring, antihypertensive medications, anticonvulsant management, intrapartum management (monitored continuously for eclamptic seizures), and postpartum management (monitored for blood loss and signs of shock).

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

The drug of choice is magnesium sulfate. Other medications that might be ordered are antihypertensive medication, such as labetalol, hydralazine, or nifedipine.

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

Magnesium Sulfate is always delivered by pump and piggybacked into mainline IV infusion to the most proximal port. The nurse should monitor for toxicity: respiratory depression, chest pain, mental confusion, depressed deep tendon reflexes, flushing, sweating, lethargy, and hypotension. The nurse should ensure that calcium gluconate is readily available.

The nurse should monitor blood pressure frequently during administration. Assess the woman for respiratory rate above 12 breaths per minute, presence of DTR's, and urinary output greater than 30ml/ hour before administering magnesium sulfate.