

## 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 patient is at 41 weeks gestation so the placenta will begin to stop working at about 40 weeks leaving the baby with less nutrients and oxygen. The amount of amniotic fluid will also start to decrease. The patient has also begun to dilate and efface with contractions.

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

Prostaglandin is used to cause cervical ripening. This will help the cervix be more likely to dilate with the forces of labor.

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

The fetal monitors need to be placed on to monitor heart rate and variability. Watch for tachycardia, bradycardia, and late decelerations. Perform Leopold's maneuver and vaginal exam to determine the fetal position. Observe for contractions and length and intensity.

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

Oxytocin is given for induction and augmentation of labor. It is always given as a piggyback through its own pump so it can be stopped quickly if needed. It will be given in the most distal port closest to the insertion site. Watch for fetal distress on the monitor and uterine hyperactivity.

## **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.

During the first trimester hypoglycemia, hyperglycemia, and ketosis can lead to increased risk for abortion. UTI's are common due to glucose in the urine. Hydramnios is also a risk which may result from fetal hyperglycemia and consequent fetal diuresis and PROM due to overdistention of the uterus or a large fetus. If the fetus has macrosomia, shoulder dystocia is more likely along with damage to the birth canal or the infant

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

The most common congenital malformations associated with gestational diabetes is Neural Tube Defects, Caudal regression syndrome and cardiac defects. Fetal growth is affected with gestational diabetes leaving a large baby. Consequently, if the mother has experienced vascular damage prior to pregnancy the fetus will be smaller than normal due to impaired placental perfusion. The infant is at risk for hypoglycemia after delivery due to the maternal glucose supply being abruptly stopped. The neonate is also at risk for Hyperbilirubinemia because additional erythrocytes that were used to transport oxygen are now breaking down. The newborn is also at risk for Hypocalcemia and Respiratory Distress Syndrome.

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

Diet and exercise is the main way to combat diabetes. Proper calories from high fiber complex carb, protein and fat should be incorporated into meals with caloric intake distributed throughout three meals and 2+ snacks. Glucose testing should be performed before meals and periodically when experiencing hypoglycemic symptoms. Insulin needs can change throughout pregnancy because of placental hormones increasing the further along in gestation and a rapid decline postpartum.

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

Because we are not told the patient was already diagnosed with Type 1 diabetes, we will assume she does not have any vascular changes related. The baby will likely be LGA. In women without vascular impairments, oxygen and glucose are easily transported to the fetus, while insulin is not. The baby is required to make its own insulin, which is a powerful growth hormone, resulting in macrosomia.

## **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?

She is exhibiting pregnancy induced hypertension with a blood pressure greater than 140/90. We can assume this is Severe Preeclampsia due to the pitting edema, headache, blurred vision and proteinuria.

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

She has missed two appointments where early stages of hypertension could have been caught. Her poor diet, working on her feet, and possibly the stress of school can have a negative impact on her blood pressure.

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

Vascular: decreased production of prostacyclin and alteration in prostacyclin/thromboxane ratio. Vasoconstriction and vasospasm. Capillary permeability which contributes to edema formation

Cardio/Pulmonary: arteriolar narrowing- increased blood pressure. Depletion of intravascular colloids through capillary permeability and renal excretion of proteins—pulmonary edema, myocardial ischemia.

Renal: decrease in glomerular size, thickening of renal arterioles – at risk for oliguria, ATN, renal failure

Hepatic: hemorrhage into hepatic tissue – elevation of AST/ALT. HELLP syndrome. Hepatocellular necrosis- signs of liver failure, malaise, nausea

CNS: increase CNS involvement, increased ICP, alteration of cerebral autoregulation with seizures – cerebral edema, risk for seizures, headache, dizziness, blurred vision, tachycardia, altered LOC

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

Activity Restrictions with left lateral position. Blood pressure monitoring frequently. Daily weights to assess amount of fluid retained. Urinalysis to test for proteinuria. Fetal assessments to watch for fetal compromise. Diet should have ample protein and calories possibly without salt or on fluid restrictions.

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

Magnesium sulfate is the drug most often used. Phenytoin and diazepam are not first line drugs but can be used in cases which magnesium is inappropriate.

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

Contraindicated in patients with myocardial damage, heart block, or impaired renal function.

Magnesium toxicity may be due to incomplete excretion through the kidneys and is evidence by respiratory difficulty, lethargy, mental confusion, slurred speech, visual disturbances or a decrease in reflexes.

Some reactions include flushing, sweating, hypotension, depressed DTR's, CNS depression, respiratory depression

Implications:

Monitor blood pressure closely. Assess for respiratory rate above 12. Presence of DTRs and urinary output greater than 30mL/hr

Set up resuscitation equipment in the room

Have calcium gluconate readily available