

## 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 passed 40 weeks which is a good indication for labor due to the risk of still birth of the infant or placental insufficiency.

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

Prostaglandin is a drug that helps the cervix dilate by causing cervical ripening.

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

Assess the FHR for at least 20 mins before induction and perform Leopold's maneuvers to identify fetal presentation. If abnormal FHR patterns exist or fetal presentation is not cephalic, you must get an ultrasound before induction and notify the PCP. Lastly, observe UA for establishment of effective labor pattern.

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

First, ensure oxytocin is delivered via a secondary line and controlled by a pump, because it is primarily the nurse's decision when to start, stop or change the infusion. The nurse must observe for abnormal UA activity along with FHR patterns and know the right implantations to perform according to those areas. (stop oxytocin, reposition, administer IV 500 ml, admin O2 10L NRB, administer tocolytics and/or notify PCP.) If used postpartum, monitor for cramping and asses VS Q15 mins along with I and Os.

## **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, insulin response to glucose accelerates due to maternal metabolic rates and energy needs. As a result, hypoglycemia occurs due to the increased nausea, vomiting and anorexia that occurs during the first trimester or mom can become hyperglycemic. Ketoacidosis may lead to a spontaneous abortion or fetal abnormalities and can oppose a threat to T1DM patients resulting in infections or missed doses of insulin. Ketoacidosis develops in women of lower thresholds of hyperglycemia and can progress to fetal or maternal death. Due to the high levels of glucose in urine, UTIs are also more prevalent in these patients.

Other issues like, PIH or preeclampsia is more likely to be the result of a woman with preexisting gestational diabetes. Hydramnios can result from fetal hyperglycemia and PROM which can later result in an overdistended uterus which leads to postpartum hemorrhage. Lastly, macrosomia can result in labor dystocia, shoulder dystocia, increased risk of c-section, and injury to child or birthing canal.

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

These risks are dependent on the timing and severity of the maternal hyperglycemia and degree of vascular impairment. However, congenital malformations like neural tube defects, caudal regression syndrome and cardiac defects can occur. Variation in size alters as well since maternal hyperglycemia and fetus are parallel resulting in overgrowth of the fetus. Vascular impairment can be caused due to these complications resulting in preeclampsia and placental impairment. Issues with the placenta can result in decreased oxygen supply to baby that causes SGA and oligohydramnios, which halts normal circulation to the kidneys.

Four neonatal complications are hypoglycemia, hypocalcemia, hyperbilirubinemia, and respiratory distress syndrome. Hypoglycemia risks are high in the neonate due to increased need of maternal insulin during pregnancy. This can lead to hyperplasia and hypertrophy of the islets of Langerhans in the fetal pancreas. Hypocalcemia is relative due to hyperparathyroidism seen in many mothers, but other issues like, magnesium-calcium balance, asphyxia or preterm birth can occur. Hyperbilirubinemia occurs due to the recurrent episodes of hypoxia. After birth, excess erythrocytes are broken down and released into neonates' circulation. Respiratory Distress Syndrome happens because of fetal hyperinsulinemia retards cortisol production, which is necessary for the surfactant in babies' lungs.

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

Education of maternal diet and exercise, self-monitoring of blood glucose levels or insulin therapy should be discussed along with fetal surveillance.

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

It depends. The baby can either be classified as LGA due to the increased production of insulin that acts as a growth hormone, or the baby can be SGA due to placental damage if vascular impairment occurred.

## **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 patient is exhibiting signs and symptoms of preeclampsia. These symptoms include her 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.

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

Adolescents are generally at risk of PIH. Other factors include, being a single parent who lives with her parents and still enrolled in school could be very stressful to her. She also started prenatal care a little bit late and has poor nutritional habits.

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

The vascular bed is affected due to endothelial dysfunction, altered coagulation, and altered response to vasoactive substances leading to increased thrombus formation, vasoconstriction, vasospasms, increased BP, pulmonary edema, and cerebral emboli. The cardiovascular and pulmonary systems are affected due to increased vascular resistance, increased cardiac output, and decreased colloid osmotic pressure. This can result in edema, increased HTN, myocardial ischemia and left ventricular dysfunction. The renal system is affected due to poor perfusion and filtration, which results in proteinuria, high uric acids, decreased BUN/CR levels that can put the patient at risk for oliguria, ATN, and renal failure. The hepatic system changes in consistent to hemorrhage conditions. PLT levels are increased putting the patient at risk for coagulopathy, hemorrhage, and spontaneous bleeding. Other issues like, HELLP syndrome, liver failure, malaise, hyperemesis, epigastric pain, and hypoglycemia can occur. The CNS is affected due to the destruction of RBCs, increased intercranial pressure, and decreased oxygenation. These issues can cause cerebral edema and CNS irritability.

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

The overall cure for this patient is delivery of the placenta. However, with adequate nutrition and fluids in conjunction with activity restrictions, regular blood pressure checks, clinical urine dipsticks, and fetal assessments, the patient's health can be managed at home. If maternal or fetal health declines before 37 weeks, we must administer corticosteroids to help in fetal lung development.

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

Magnesium sulfate is generally the drug of choice for this patient because it prevents seizure activity. Other antihypertensive drugs like, Labetalol, Hydralazine, and Nifedipine, can be ordered to reduce high BP levels and reduce the risk of CHF or stroke.

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

Nurse must monitor VS closely. Respirations must not drop lower than 12 bpm. Urinary output should be greater than 30 ml/hr and there should be no sign of decreased or absent DTRs. If any of these should occur, resuscitation needs to occur immediately after stopping the magnesium sulfate. The antidote for magnesium is calcium gluconate, but this requires a crash cart and heart monitor at bedside.