

## 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 indications for induction of labor are intrauterine environment is hostile to fetal well-being, SROM at or near term without onset of labor (premature rupture of the membranes). If pregnancy is preterm, less than 37 weeks, the term preterm premature rupture of the membranes (PPROM) is used, Post term pregnancy, Chorioamnionitis, Hypertension, and Placental abruption.

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

The physician order prostaglandins the evening before the induction because it is a drug use to cause cervical ripening and make it more likely to dilate with the forces of labor.

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

UA, FHR, and fetal heart patterns are monitored before induction for a baseline, when oxytocin is started, and throughout labor.

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

Assess the FHR for at least 20 minutes to identify fetal well-being. Perform Leopold's maneuvers, a vaginal examination, or both to verify a cephalic fetal presentation.

Observe UA for establishment of effective labor pattern. Observe for excessive UA.

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. Record the maternal blood pressure, pulse rate, and respirations every 30 to 60 minutes or with each dose increase. Record intake and output.

## 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, preeclampsia
- Ketoacidosis – women with Type 1 diabetes, infection, missed insulin dose, women at lower thresholds of hyperglycemia
- UTIs – glucose in the urine, which provides a nutrient-rich medium for bacterial growth.
- Hydramnios - may result from fetal hyperglycemia and consequent fetal diuresis and premature rupture of membranes, which may be caused by overdistention of the uterus by hydramnios or a large fetus
- Macrosomia (weighs more than 8.8 lb [4000 g]) – may include a difficult labor, shoulder dystocia (delayed or difficult birth of fetal shoulders after the head is born), and consequent injury to the birth canal or the infant.

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

- Congenital Malformation - neural tube defects (NTDs), caudal regression syndrome (failure of sacrum, lumbar spine, and lower extremities to develop), and cardiac defects - maternal hyperglycemia is not controlled during the first trimester.
- Fetal macrosomia - results when elevated levels of blood glucose stimulate excessive production of fetal insulin
- Intrauterine Growth Restriction (IUGR) – impaired placental perfusion decreases supply of glucose and oxygen delivered to the fetus. Amniotic fluid may be reduced (oligohydramnios) as the fetus conserves oxygen for the heart and brain rather
- Hypoglycemia – when the maternal glucose supply is abruptly withdrawn at birth, the level of neonatal insulin exceeds the available glucose, and hypoglycemia develops rapidly
- Hypocalcemia - a relative hyperparathyroidism seen in many diabetic mothers
- Hyperbilirubinemia – After birth, the excess erythrocytes are broken down, which releases large amounts of bilirubin into the neonate's circulation. More likely in the infant of a woman with
- poor glycemic control further reduces the infant's ability to metabolize and excrete excess bilirubin.
- 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 - caloric intake should be distributed among three meals and two or more snacks. The bedtime snack should include a complex carbohydrate and a protein.
- Self-Monitoring of Blood Glucose level - should record all test results on a log sheet or cell phone app for review by the health care provider at each visit.
- Insulin Therapy - need to maintain rigorous control of maternal metabolism during pregnancy requires more frequent doses of insulin than usual.

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

This patient's baby will most likely be large gestational age especially if diabetes is not well controlled because the mother's excess amounts of blood glucose are transferred to the fetus during pregnancy. This causes the baby's body to secrete increased amounts of insulin, which results in increased tissue and fat deposits.

## **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 preeclampsia. 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, 3+ proteinuria supports my concern.

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

Age (teens/adolescents), never eats breakfast, snacks for lunch and eats dinner after she gets off work

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

- Cardiovascular and Pulmonary –

Arteriolar narrowing, ↑ Sympathetic activity, ↑ Levels of endothelin 1, a vasoconstrictor, ↑ Sensitivity to endogenous pressors, including vasopressin, epinephrine, and norepinephrine, ↑ Capillary permeability, Further depletion of intravascular colloids through capillary permeability and renal excretion of proteins

- Renal –

Slight decrease in glomerular size, Diameter of glomerular capillary lumen decreased, Glomerular endothelial cells are greatly enlarged and may occlude the capillary lumen, Glomerular capillary endotheliosis, Thickening of renal arterioles

- Hepatic –

Changes consistent with hemorrhage into hepatic tissue, Later changes consistent with hepatic infarction, ↑ Hepatic artery resistance, Fibrin deposition, Hepatocellular necrosis

- Hematologic –

↑ Platelet destruction, ↑ Platelet aggregation, ↑ Platelet life span, Hemolytic anemia, Destruction of RBCs in microvasculature

- CNS –

May indicate increasing CNS involvement, but not diagnostic of disease, Alteration of cerebral autoregulation with seizures, ↑ intracranial pressures

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

Activity restrictions – sedentary activity most of the day, home blood pressure monitoring, follow up visits to the provider every 3 to 4 days, daily weight each monitoring, urine dipstick testing for protein (urinalysis), fetal assessments - kick counts, BPP, ultrasonography, Doppler velocimetry, diet should have ample protein and calories - a regular diet without salt or fluid restriction is usually prescribed

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

Antihypertensive medications: Labetalol, Hydralazine, and Nifedipine. Other medications such as anticonvulsant - Magnesium sulfate, Phenytoin, and Diazepam.

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

Magnesium Sulfate.

S/E: flushing, sweating, low blood pressure, irregular heartbeat, dizziness, muscle weakness

Medication Administration Guidelines:

Monitor blood pressure closely during administration. Assess the woman for respiratory rate above 12 breaths per minute, presence of DTRs, and urinary output greater than 30 mL/hr before administering magnesium. Place resuscitation equipment (suction and oxygen) in the room. Ensure calcium gluconate, which acts as an antidote to magnesium, is readily available, along with syringes and needles.