

## 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?

She is 41 weeks, and her last baby was 9lb. The gestational age is associated with decreased risk for c-section and neonatal respiratory morbidity.

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

Prostaglandins help cause the cervix to dilate and contractions to occur. It is prescribed to induce labor if it's decided that you should give birth before labor naturally occurs. This is recommended for Bishop score less than a 4.

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

A Bishop score to assess the cervix readiness. Assess gestational age, mom's health, baby's health, baby's position in the uterus.

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

Needs to be diluted in isotonic solution and given as a secondary. The line needs to be inserted into the primary IV-line proximal port. Start it off slow and gradually increase. Monitor any signs of fetal distress like baby's HR, arrhythmias, decrease or absent fetal movement, UA. Always use a pump. Monitor contraction strength and length. The nurse also decides when to start, change and stop the infusion based on protocols and medical orders.

## 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 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.

HTN, preeclampsia is unknown cause but increased even without renal or vascular impairment. UTI is caused by increased bacterial growth in nutrient-rich urine. Ketoacidosis (risk for mom & fetus) is caused by uncontrolled hyperglycemia or infection; most common in women with type 1 diabetes. Labor dystocia, cesarean birth, uterine atony with hemorrhage after birth is caused by hydramnios secondary to fetal osmotic diuresis caused by hyperglycemia; uterus is overstretched. Birth injury to maternal tissues (hematoma, lacerations) is caused by fetal macrosomia caused by difficult birth.

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

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

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

Maintain normal blood glucose levels, facilitate the birth of a healthy baby, avoid accelerated impairment of blood vessels and other major organs. Contraceptives, diet and self-monitoring, insulin therapy, and timing of delivery.

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

LGA because of her history of a stillborn so it can indicate she wasn't aware she had gestational diabetes and had poor control over it also her age. So, she is at high risk for a LGA.

## **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?

Preeclampsia because she has an onset of hypertension after 20 weeks of pregnancy that was accompanied by proteinuria >1+.

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

First pregnancy, her age, high BP, severe HA, proteinuria.

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

Kidneys: decrease renal perfusion reduces the glomerular filtration rate. Blood urea nitrogen, creatinine and uric acid levels rise. Reduces renal blood flow results in glomerular damage, allowing protein to leak across membrane, which is normally impermeable to large protein molecules. Loss of protein reduces osmotic pressure and allows fluid to shift to interstitial spaces.

Liver: reduce circulation impairs function and leads to hepatic edema and subcapsular hemorrhage, which can result in hemorrhagic necrosis. This is manifested by elevation of liver enzymes in maternal serum.

Brain: vasoconstriction of cerebral vessels leads to pressure included rupture of thin-walled capillaries, resulting in small cerebral hemorrhages. Symptoms of arterial vasospasm include HA and visual disturbances such as blurred vision, "spots" before the eyes, and hyperactive deep tendon reflexes (DTRs).

Placenta: decrease circulation results in infarctions that increase the risk for placental abruption and HELLP syndrome. Fetus is likely to experience intrauterine growth restrictions, persistent hypoxemia, and acidosis when maternal blood flow through the placenta is reduced.

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

Since the gestational age is 34 weeks, she is going to receive steroids to accelerate fetal lung maturity and attempt to delay birth for 48 hrs. She is going to require hospitalization because she has severe preeclampsia. We need to improve placental blood flow and fetal oxygenation and prevent seizures and other maternal complications, such as strokes as her condition stabilizes before birth. Ultrasounds may be done to evaluate fetal blood flow through the umbilical cord and placenta. Bed rest in lateral position and her environment is kept quiet. External stimuli (lights, noise) that might precipitate a seizure should be reduced. Frequent monitoring.

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

Medication would be anticonvulsant medications (Magnesium sulfate – for seizure prophylaxis in patients with severe preeclampsia. Other meds would be Antihypertensive medication (Labetalol, Hydralazine (Apresoline), Nifedipine).

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

Magnesium sulfate. It is administered IV infusion via secondary line, so it can be discontinued at any time, which allows for immediate onset of action and does not cause the discomfort associated with intramuscular administration. There needs to be two qualified nurses check the orders and pump setting to ensure g/hr is infused and the total IV volume is correct. Continuous monitoring. Side effects usually occur if the serum level is too high. Most significant is CNS depression, including depression of respiratory center.