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High-Risk Antepartum Case Study

Ashley is a 29 year old, African-American, Gravida 1. She is 13 + 0/7 weeks pregnant with di – di twins. She also has scleroderma with contracted elbow and fingers. She presents to the clinic with a routine 4 week return visit. Her previous labs include: Hgb 10 g/dl, Hct 32%, O+, ABS -, Negative pap, VDRL, GC and Chlamydia. She is rubella equivocal. The physicians plan to do a transvaginal cervical length today and follow-up with pulmonary and rheumatology. BMI= 18.4. This visit data: BP: 110/60, weight 120lbs, (a gain of 5 lbs), Urine is negative for glucose, nitrates and leukocytes, trace for protein.

Ashley presents to the high-risk clinic for her first pregnancy or primigravida. She is 13 + 0/7 weeks pregnant, which means she is at 13 weeks gestation. Ashley is at the clinic for her routine 4-week visit. Generally, prenatal visits are every 4 weeks for the first 28 weeks of gestation, but women with higher risk pregnancies may need more frequent monitoring (Davidson, London, & Ladewig, 2008). This is most likely Ashley's second prenatal visit, since most women are first seen at about 8 weeks gestation, unless the pregnancy was planned.

Ashley's hemoglobin (Hgb) of and hematocrit (Hct) levels are abnormally low for a woman carrying twins. Normal Hgb levels during the first trimester are $\geq$11 g/dL and normal Hct levels are $\geq$33%; Ashley's levels are 10 g/dL and 32%, respectively (Esch and Hawkins, 2004a). Low Hgb and Hct levels are indicative of anemia. Anemias during pregnancy are common and may be caused by inadequate intake of iron, vitamins B_6 and B_{12}, folic acid, ascorbic acid, copper, and zinc, or sickle cell anemia and thalassemia. During pregnancy, a woman needs 27 mg per day of iron, as opposed to only 18 mg per day for non-pregnant women. The increased need for iron is due to the growth of the fetus and placenta, and the expansion of maternal blood volume; the demand is even greater in multiple gestation (Davidson et al., 2008). Low iron increases the chances of low-birth-weight and preterm birth. To aid in the treatment of Ashley's anemia she will need to be put on a prenatal vitamins and will require nutritional

counseling. A CBC and Schilling differential cell count should be preformed to follow up on the low Hct. A Hgb test is usually done again at 7 months gestation, but since Ashley's values are low it should be monitored more frequently.

During Ashley's previous visit, she had a blood typing test and an ABS test. The ABS test, also known as an indirect Coomb's test, is an antibody screen done to look for specific maternal antibodies that have developed against the blood of the fetus. Ashley's test results were negative, which is normal, and means that Rh sensitization has not occurred (Nissl, 2006). Plus, it a good sign that Ashley is an O+ blood type because Rh incompatibility between the mother and fetus most commonly occur when the mother is Rh negative. The ABS test will be repeated at 28 weeks gestation to assure that Rh sensitization has not occurred. It should be noted that Ashley's newborn baby is at risk for ABO incompatibility if the fetus is type A or B, since Ashley has type O blood. There is no treatment for ABO incompatibility antepartally, and the newborn will be assessed at birth (Davidson et al., 2008). If possible, the father's blood type should be known.

Additionally, Ashley received a Pap smear and a variety of sexually transmitted infection (STI) tests. The Pap smear was negative, indicating that she shows no atypical cells in her cervix. This is normal. The VDRL is a test to screen for syphilis, GC screens for gonorrhea and Chlamydia, and the Chlamydia test screens for Chlamydia. All of these tests came back negative, which is normal.

Ashley's rubella titer was equivocal, which is 0.901 – 0.9999. A normal rubella titer result is 1.0 or greater. Esch and Hawkins (2004a) recommend that if the titer is equivocal, "the chart is flagged and the patient should be told 1) to notify us if she is exposed to rubella during pregnancy, and 2) that she needs to be redrawn postpartum."

Ashley is unable to receive a vaccine until postpartum because it contains a live attenuated virus that can infect the fetus. During this visit, I would assess Ashley for rubella--paying attention to signs of a rash, lymphadenopathy, muscular aches, and joint pain. I will also need to ask her if she has noticed any signs of a mild infection within the last month, since Rubella titers can remain elevated for 1 month after an infection.

Rubella during pregnancy, especially during the first trimester, can be dangerous to the fetus. It can result in congenital cataracts, sensorineural deafness, and congenital heart defects. Mental retardation or cerebral palsy may appear during infancy. Also, since Ashley is pregnant with twins, she is at risk of losing one of the fetuses, since infection is a causative factor of pregnancy loss in multiple gestation. Furthermore, loss of a twin is more likely to occur during the first trimester. It will be important to educate Ashley about what it means to be rubella equivocal. Her ability to cope and support systems need to be assessed if a miscarriage were to occur. Ashley should be informed that she has the option of a therapeutic abortion.

Not only does rubella pose a threat to Ashley's unborn children, but the fact that she has scleroderma also does. Steen (2007) reports that women with scleroderma have increased risks of miscarriages, premature infants, or small full-term infants. These rates are increased in African American women. In a study by Steen (2007), she found that scleroderma was stable in 61% of pregnancies, 20% experienced some improvement in their disease, and 20% experienced some worsening. It's difficult to distinguish the effects pregnancy has on scleroderma because many of the symptoms are similar; such as edema, joint pain, back pain, and gastrointestinal reflux. Ashley should be educated that these symptoms may increase during pregnancy.

Another risk of scleroderma and pregnancy that Steen (2007) points out is that "renal crisis is the most serious complication of scleroderma and the cause of the most maternal deaths in scleroderma pregnancies" (p. 350). Signs and symptoms of a renal crisis will need to be closely monitored. Although women with scleroderma are considered a high-risk pregnancy, they should not be discouraged. Steen acknowledges that with a combination of careful planning, close monitoring, and aggressive management, women with scleroderma have a high likelihood of a successful pregnancy. Some of the special actions that need to be taken include: early evaluation of extent of scleroderma organ involvement and autoantibody analysis, more frequent monitoring of fetal size and uterine activity, and frequent blood pressure (BP) monitoring.

According to Ashley's BMI of 18.4, she is underweight. A normal BMI is 19.8-26. Currently, she weighs 120 pounds (lbs) and has gained 5 lbs since the last visit. For women of normal weight, it is recommended that they gain 3.5-5 lbs during the first trimester. Plus, it is recommended that women carrying twins gain a total of 35-45 lbs, and African American women should aim for gains in the upper range (Davidson et al., 2008). Given that Ashley is underweight, carrying twins, and African American, she probably should have gained more than 5 lbs during her first 13 weeks. It's important to have adequate weight gain during maternity to ensure proper fetal growth and infant birth weight, as well as providing appropriate nutrition and health for the mother. Ashley needs to be aware and educated about these facts. Proper nutrition is also essential to Ashley because she is already at risk for low birth weight and premature infants due to her scleroderma. As suggested before, Ashley will need nutritional counseling and frequent monitoring of her weight.

Ashley's BP of 110/60 is normal. During the first trimester the BP should be less than or equal to 135/85. The current BP should also be compared to the baseline data, because as stated previously, it will be important to closely monitor Ashley's BP because of the scleroderma. It is normal for Ashley's urine to be negative for glucose, nitrates, and leukocytes. Normally, no protein should be present in the urine. Since, Ashley has trace amounts of protein in her urine, I would obtain a dipstick urine sample or another urinalysis because the urine sample may have become contaminated by vaginal discharge. Increased vaginal discharge is common during the first trimester, and it would be important to make sure that Ashley knows how to properly catch a clean urine sample. If it were still positive for protein, I would need to refer her to her healthcare provider. According to Davidson, London, and Ladewig (2008), protein in the urine may indicate a kidney infection, a urinary tract infection (UTI), or preeclampsia. This needs to be closely monitored because of the scleroderma. In addition, the baseline protein urinalysis is used as a reference for future comparisons so it's important that it be accurate (Esch and Hawkins, 2004a).

During Ashley's visit today, I will make sure that she has received all of the tests that she may not have received at her first visit. Some of these tests include a hepatitis B screen, an HIV screen, and a sickle-cell screen. Today, Ashley can also receive an ultrasound. Esch and Hawkins (2004a**)** state that an ultrasound can be used to determine the size of the fetus, dating, amount of amniotic fluid, lung and cardiac activity, and fetal movement.

In the course of the ultrasound, the thickness of the fetal nuchal fold, also known as the nuchal translucency (NT), can be performed. An NT result greater than 3 mm is abnormal. The NT results, in combination with a blood test to measure serum protein

levels, can be useful in providing risk estimates of Down syndrome, trisomy 18, cardiac defects, and other abnormalities (Davidson et al., 2008). The NT and serum protein levels are referred to as a First Trimester Screening (FTS). A negative result is a good sign and indicates that there is a lower risk of developing Down syndrome or trisomy 18. If the results were positive, the FTS results would be used with a second trimester quad screening to more accurately assess the risks of Down syndrome or trisomy 18.

In addition to the ultrasound, I would like to measure the fundal height. To do this I would measure from the top of the symphysis pubis to the top of the uterine fundus. The fundal height can indicate uterine size and if it is not growing from week to week, it can be a sign of intrauterine growth restriction (IUGR). IUGR is a term used to describe if a fetus is underweight. Factors that can affect IUGR include hypertension, poor maternal weight gain, poor nutrition, substance use, anemia, or chronic illness. It will be necessary to measure the fundal height each visit because Ashley possesses some of these factors. During this time, I would also like to use the Doppler to try and hear a fetal heartbeat. Using a Doppler, the heartbeats may be detectable at 10 to 12 weeks' gestation. Since Ashley is pregnant with twins, I should be able to hear two separate heartbeats in different quadrants (Davidson et al., 2008).

Ashley is pregnant for the first time, and therefore will most likely require a lot of teaching needs. Before beginning my teaching, I will need to assess her readiness to learn and what she already knows. A priority teaching need for Ashley is maternal nutrition because she is underweight and anemic. A multiple gestation pregnancy requires an extra 600 kcal per day, or approximately 2800 calories. It's necessary that Ashley's' caloric intake is of high nutritional value, rather than "empty" calories. A way to achieve this goal would be to provide and explain the new MyPyramid (Davidson et

al., 2008). This will help her to make healthy food choices and encourage physical activity. Ashley should also know foods to avoid, such as, alcohol, un-pasteurized cheese or milk, undercooked or raw meat and eggs, MSG, and sweeteners.

As previously stated, Ashley ought to be on a prenatal vitamin to help increase her nutritional needs. She should be informed that even though she is on a prenatal vitamin, that does not reduce the needs to eat a well-balanced diet. Vitamins and minerals are essential to a healthy diet and pregnancy. The vitamin is taken once daily, and if it upsets the stomach, the vitamin can be taken with food or milk (Esch and Hawkins, 2004a).

I would also like to talk to Ashley about problems that need to be reported right away, because she is a high-risk pregnancy. Vomiting lasting over 24 hours that is persistent and severe can indicate hyperemesis and lead to dehydration (Esch and Hawkins, 2004a). Unexplained bleeding, cramping, or backache can be a sign of a miscarriage. A temperature of about 100.6 degrees Fahrenheit can indicate an infection.

Since Ashley is near the end of her first trimester at 13 weeks, it will be important to educate her about what to expect during the second trimester. Many women will experience backache because of postural changes. Ways to prevent or relieve the pain include proper body mechanics, pelvic-tilt exercises, and comfortable shoes. Varicose veins and hemorrhoids can also occur. There is little that can be done to prevent varicose veins, since they are inherited. Avoiding constipation, doing Kegel exercises, or using sitz baths can help the hemorrhoids. Heartburn is another problem that happens during the second trimester. Relief can be provided by keeping away from greasy or spicy foods, knowing what foods make it worse, and avoid lying down after eating. It should

be noted that the heartburn might be intensified due to the scleroderma. Round muscle and sciatic pain can also be expected (Esch and Hawkins, 2004b).

Finally, I would like to talk with Ashley about her support systems and economic status. Ashley will be having twins, which will be a lot of work and expensive. It may be especially difficult for Ashley to hold her infants with a contracted elbow and fingers (depending on the severity), so having help will be necessary. During this visit, I could provide Ashley with resources in the community or refer her to a social worker.

A nursing diagnosis that is appropriate for Ashley is: Imbalanced nutrition – less than body requirements r/t insufficient weight gain during multiple gestation pregnancy AEB low BMI of 18.4, weight gain of only 5 lbs in first trimester, low Hgb of 10 g/dl, and low Hct of 32%. To help Ashley gain weight, I think that it is first important to first find out what she knows about maternal nutrition so an appropriate NOC would be Knowledge: Diet with indicators of description of diet, description of rationale for diet, description of advantages of diet, description of foods allowed in diet, description of foods to be avoided, description of how to select foods, and description of strategies to change dietary habits. The indicators would be rated on a scale of 1 to 5 with 1 being none and 5 being extensive (Iowa Intervention Project, 2004). To achieve these outcomes, an appropriate NIC would be Nutritional Counseling. Interventions would include determine patient's food intake and eating habits, use accepted nutritional standards to assist client in evaluating adequacy of dietary intake, and help patient to consider factors of age, stage of growth and development, past eating experiences, injury, disease, culture, and finances in planning ways to meet nutritional requirements (Iowa Outcome Project, 2004).

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