

Obstetrical and Gynecology Ward Practice

Clinical Pharmacist

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Laboratory Evaluation

▶ 1. Maternal Serum Screening Tests:

- ▶ **A. Amniocentesis (also referred to as amniotic fluid test or AFT):** is a medical procedure used in prenatal diagnosis of genetic abnormalities and fetal infections, in which a small amount of amniotic fluid, which contains fetal tissues, is extracted from the amnion or amniotic sac surrounding a developing fetus, and the fetal DNA is examined for genetic abnormalities. The three most common abnormalities tested for are Down syndrome, Trisomy 18 and spina bifida. Amniocentesis can be performed as soon as sufficient amniotic fluid surrounds the fetus to allow a sample to be recovered relatively safely, usually no earlier than the 14th week of pregnancy. Often, genetic counseling is offered in conjunction with amniocentesis.
- ▶ **B. Chorionic villus sampling (CVS:)** is a form of prenatal diagnosis to determine chromosomal or genetic disorders in the fetus. It entails getting a sample of the chorionic villus (placental tissue) and testing it. The advantage of CVS is that it can be carried out 10-13 weeks after the last period, earlier than amniocentesis (which is carried out at 15-18 weeks).
- ▶ **Indications:** Possible reasons for having a CVS can include:
 - ▶ Mother's age of 35 years or greater
 - ▶ Abnormal ultrasound findings
 - ▶ Family history of a chromosomal abnormality or other genetic disorder
 - ▶ Parents are known carriers for a genetic disorder

C. Alfa-fetoprotein (AFP or MSAFP) test: is a maternal blood test done in the second trimester that checks for a protein normally secreted by the fetal liver. The levels of this protein alert the obstetrician to the possibility of a chromosomal abnormality, such as Down syndrome or the presence of twins. Abnormal AFP levels may also indicate developmental problems in the fetus, such as neural tube defects like spina bifida or defects in the abdominal wall of the fetus.

2. Screening for Gestational Diabetes:

The 1-hour, 50-g oral glucose screen is used to detect glucose intolerance in pregnancy. Routine screening is performed on all patients between 24 and 28 weeks gestation. The significance of GDM lies not in an increased risk of fetal loss but in the risk of excessive fetal growth with its attendant birth-related morbidities.

▶ **3. Researching for Rh Antibodies:**

- ▶ All Rh-ve women who are unsensitized at the beginning of pregnancy should be retested at approximately 26-28 weeks gestation. If the antibody screen remains -ve , the mother should receive Rho(D) immune globulin .

▶ **4. Screening for Bacterial Vaginosis**

- ▶ Bacterial vaginosis(BV) is a condition in which the normal flora of the vagina(specially lactobacilli) are reduced in number and replaced by overgrowth of anaerobic organisms. Some studies have linked BV with an increased incidence of preterm labor, endometriosis and premature rupture of the membranes.

▶ **5. Testing for Group B Streptococci(GBS):**

- ▶ GBS are part of the normal vaginal flora and implicated in preterm labor, as well as in amnionitis, endometriosis, and wound infection in the mother. Vertical transmission during labor or delivery may result in generalized sepsis in the newborn and related long-term morbidity or neonatal death. Cultures obtained at 35-37 weeks gestation from the lower third of the vagina and perianal area. Culture+ve women are treated during labor with antibiotic prophylaxis to prevent fetal-neonatal GBS infection.

Teratology and Drugs in Pregnancy

- ▶ A *teratogen*: is an agent that interferes with the normal growth and development of the fetus, and is used to describe drugs or chemicals that cause major or gross birth defects.
- ▶ The food and Drug Administration (FDA) lists five categories of labeling for drug use in pregnancy.
- ▶ **Category A** : no fetal risk shown in controlled human studies (folic acid).
- ▶ **Category B** : no human data available and animal studies shown no fetal risk (Amoxicillin, metformin).
- ▶ **Category C** : Animal studies have shown an adverse effect on the fetus and there are no adequate and well controlled studies in humans (amlodipine).
- ▶ Note: Potential benefits may warrant use of the drug in pregnant women despite potential risks.
- ▶ **Category D** : studies show fetal risk in humans (use of drug may be acceptable even with risks such as in life threatening illness or where safer drugs are ineffective) (losartan).
- ▶ **Category X** : risk to fetus clearly outweighs any benefits from these drugs (atorvastatin).

Social Drug Exposure

- ▶ **1. Smoking** : Smoking is associated with decreased birthweight and increased prematurity. Risks of complications and of the associated perinatal loss increase with the no. of cigarettes smoked. Discontinuation of smoking or reduction in the no. of cigarettes smoked during pregnancy can reduce the risk of complications and perinatal mortality, especially in women at high risk for other reasons.
- ▶ **2. Alcohol**: Fetal alcohol syndrome has been reported in offspring chronically alcoholic mothers and includes the features of gross physical retardation that begins prenatally and continues after birth.
- ▶ **3. Caffeine**: There is no evidence of any teratogenic effect of caffeine in humans. Concomitant consumption of caffeine with cigarette smoking may increase the risk of low birth weight. Maternal coffee intake decreases iron absorption and may increase the chance of anemia.

Gestational Disorders

- ▶ *Gestational Diabetes (GD)*
- ▶ *Gestational Trophoblastic Disease (Hydatidiform Mole & Choriocarcinoma)*
- ▶ *Seizure disorders*
- ▶ *Thyroid Disease*
- ▶ *Urinary Tract Infection*
- ▶ *Anemia*
- ▶ *Hypertensive Disorders*
- ▶ *Toxoplasmosis*
- ▶ *Erythrocyte Immunization (Rh Disease)*

Hypertensive Disorders of Pregnancy

- ▶ Hypertension in pregnancy is defined as either a systolic BP of more than 140 mmHg or an increased of more than 30 mmHg from a baseline in the 1st half of pregnancy or a diastolic BP of more than 90 mmHg or an increase of more than 15mmHg from a baseline in the 1st half of pregnancy.
- ▶ **Pre-eclampsia:** is a condition that only occurs during pregnancy. It causes high blood pressure, protein leaks from the kidneys into the urine, and other symptoms may develop . It usually develops sometime after the 20th week of pregnancy. The severity of pre-eclampsia can vary. Serious complications may affect the mother, the baby, or both. The more severe the condition becomes, the greater the risk that complications will develop

Causes of pre-eclampsia

- ▶ Insufficient blood flow to the uterus
- ▶ Damage to the blood vessels
- ▶ Problem with the immune system
- ▶ Certain genes

Risk factors of pre-eclampsia

- ▶ Pregnant for the first time, or pregnant for the first time by a new partner.
- ▶ Previous pre-eclampsia.
- ▶ Family history of pre-eclampsia particularly if it occurred in mother or sister.
- ▶ High blood pressure before the pregnancy started.
- ▶ Diabetes, systemic lupus erythematosus (SLE), or chronic (persistent) kidney disease.
- ▶ Aged below 20 or above 35 years old.
- ▶ Pregnancy with twins, triplets, or more.
- ▶ Obese pregnant.