

NAME: EHIE-BISHOP GINA

DEPARTMENT: NURSING SCIENCE

MARIC NO: 17/MHS02/037

PHYSIOLOGICAL ADAPTATION OF FEMALE TO PREGNANCY

THE FIRST STEP IN THE ESTABLISHMENT OF PREGNANCY is IMPLANTATION OF THE BLASTOCYST into the endometrium, the goal of the embryo is to establish a conduit through the endometrium

- The success of pregnancy depends on
 1. Fertilization and successful implantation of the blastomeres into the endometrium
 2. Development and function of the placenta
 3. Adaptation of maternal physiology to accept the fetal calligraph and satisfy its nutritional and physical demands.
 4. Appropriate growth and functional development of key organ and homeostasis step in the fetus and
 5. Proper timing of birth so that it can occur when the fetus is mature enough to survive outside the UTERUS

- GESTATIONAL period takes about 40 weeks with the embryo giving rise to a fetus around the 8-9 weeks of Gestation.

One of the major Gestational endocrine response

- Gestation is the reproduction of human chronic gonadotropine hormone (hCG)
- hCG stimulate the Corpus luteum to continue to excrete progesterone and estrogen during pregnancy, the presence of hCG in blood or Urine samples is the basis of pregnancy test hCG peaks about the 10 weeks of pregnancy after which it starts declining as the placenta becomes fully formed and takes over the production of progesterone and estrogen and other hormones of pregnancy, however hCG remains elevated through out Gestation
- The placenta has the maternal side and the fetal side, the maternal side is the residual in the endometrial arteries bring in blood from maternal circulation into the intervillous space, trophoblast from the embryo sends out cord like progestin

into which fetal capillaries grow to form the placenta villi in the intervillous space, The placenta villi is bathed by blood from the maternal circulation. An exchange of material between the mother and child takes place in the placenta membrane, This ensures that fetal and maternal blood do not mix.

- Maternal blood returns to the maternal circulation through the endometrial veins while fetal blood returns to fetal circulation through the umbilical veins and blood from fetal circulation enters the placenta villi through umbilical arteries.
- The placenta serves as a medium of exchange between maternal blood and fetal blood over the fetal membrane, exchange of material can take place through simple diffusion, facilitated diffusion, active transport or endocytosis.
- Gases such as oxygen and carbon dioxide and many electrolytes cross the placenta by simple diffusion, oxygen crosses from the maternal blood to the fetal blood while CO₂ crosses from the fetal blood to the maternal blood.
- Placental oxygen transport deficiency is far less compared to that of the lungs, however to compensate for this, the fetal Red blood cell (RBC) contains a high oxygen affinity
- Haemoglobin known as the FETAL HAEMOGLOBIN. This compensates for the reduced deficiency for oxygen transport across the plasma membrane.
- Amino acids and nutrients are transported by active transporters, neutral fats do not cross the placenta and low density lipoprotein are transported by endocytosis.

PLACENTA FUNCTIONS

- Exchange of materials
 1. Nutritional respiratory
 2. Respiratory
 3. Excretory functions
- Barriers/ protections
- Immunity purpose to prevent attack
- Production of hormones e.g hCG, estrogen, prolactin, oxytocin etc

- Facilitate easy exchange of materials between mother and child over the placenta membrane.

PHYSIOLOGICAL CHANGES OF FEMALE TO PREGNANCY

- physiology changes are made to the woman body during pregnancy as a result of the hormones produced by the placenta during pregnancy and the growing Uterus , hCG limits the function of luteinizing hormone and stimulate the increase production of estrogen and progesterone from the placenta, The high level of estrogen and progesterone in pregnancy causes negative feedback on the production of follicles stimulating hormone and luteinizing hormone from the anterior pituitary gland, the exhibition of this hormone prevent ovulation in pregnancy, endocrine glands are enlarged in pregnancy this are the pituitary gland, the thyroid gland, the adrenal gland, parathyroid gland, there is increase secretion of Erythropoietin.
- There is (B cells hyperplasia). In the high late of the of the pancreas and this could bring about increase insulin secretion
- The increased insulin and cortisol secretion could make pregnancy to be in diabetogenic state, a few women may develop diabetes for the first time during pregnancy this condition is known as Gestational diabetes and usually result after pregnancy.
- **SKIN CHANGES** A number of changes take place in the skin of pregnant women. Mechanical stretching of the skin over the abdomen and breasts can lead to striae. The increased levels of estrogen and progesterone have also been implicated. Usually striae remain permanently with some change in color. Prevention may be achieved with moisturizing creams, especially those containing lanolin and other oily substances. It should be realized, however, that striae may develop despite any preventative measures.
- **CHANGES IN THE GASTROINTESTINAL SYSTEM** Nausea and vomiting are the most frequent complaints involving the gastrointestinal system and usually happen in early pregnancy while heartburn happen primarily in late pregnancy. The gums become hyperemic and edematous during pregnancy and tend to bleed. The muscular wall of the esophagus is relaxed and this may cause reflux, which in turn can lead to esophagitis and heartburn. The stomach and the intestines have decreased motility presumably due to the effect of progesterone on smooth muscle contractility. This causes an

increase in the time that it takes for the stomach to empty. Reduced gastric secretion has also been documented and it could account for the improvement of peptic ulcers sometimes observed in pregnancy. Decreased motility of the large intestine may lead to constipation.etc.