

PLACENTA:

It forms a link b/w the fetus and mother

→ It is connected to the fetus by umbilical cord,

→ The site of attachment of placenta in the centre of Ant-Abdomen of fetus is called navel or umbilicus.

FUNCTION OF PLACENTA

Nutritive function:

sub like electrolytes and hormones necessary for the development of fetus diffuses from mother → fetal blood

Excretory function

waste products from fetal → mother blood ^{excreted.}

Respiratory function.

O₂ necessary for fetus is secured by diffusion from the maternal blood. & CO₂ diffuses.

exchange of Respiratory gases b/w Fetal Blood & Maternal Blood:

PO₂ = 50 mm Hg → Maternal blood.

PO₂ = 30 mm Hg - Fetal blood.

This pressure gradient of 20 mm Hg. cause the diffusion of oxygen into the fetal blood.

(i) There is 20 times more affinity for O₂ than the Adult hemoglobin.

(ii) The conc of hemoglobin is about 50% more in fetal blood than Adult blood.

Bohr effect and double Bohr effect

Bohr effect is the ↓ in the Affinity of hemoglobin for O₂ due to H⁺ ion.

Double Bohr effect is the equation of Bohr effect in both fetal blood & maternal blood.

ENDOCRINE FUNCTION:

Hormone secreted by placenta

- 1) Human chorionic gonadotropin
- 2) Estrogen
- 3) Progesterone
- 4) Human chorionic somatomammotropin
- 5) Relaxin.

1) HCG - Glycoprotein.

(i) On corpus luteum → hCG is responsible for pervasion & secretory activity of corpus luteum. Deficiency may lead to Phosphor.

(ii) On fetal testis: It is similar to LH in Adult. It stimulates interstitial cells of Leydig & cause secretion of testosterone.

2) Estrogen - similar to ovarian estrogen.

(i) On uterus: Cause enlargement of the uterus for growing fetus.

(ii) On breasts: enlargement of breast & duct system.

(iii) On external genitalia - enlargement of female external genitalia.

(iv) On pelvis: Relaxer pelvis ligament. facilitates the passage of the fetus through the birth canal.

3) Progestins:

(i) On endometrium: Accelerates the proliferation & development of decidua in the endometrium of uterus.

(ii) On the movement of uterus: Inhibits the contraction of muscle in pregnant uterus.

(iii) Breasts

cause enlargement of breasts & growth of duct system.

4) HCS → Human chorionic somatomammotropin

→ Growth hormone of pregnancy

called placental lactogen:

⇒ It ↑ the amount of glucose & lipid in the maternal blood.

(i) On breast - enlargement of mammary gland & induce lactation. - mammotropin.

(ii) On protein metabolism: Anabolism of protein - Accumulation of protein in fetal tissue.

(iii) On carbohydrate metabolism: Reduce the peripheral utilization of glucose. A ↓ glucose utilization in mother.

(iv) On lipid metabolism.

⇒ This ensure Adequate supply for fuel for the fetus.

It mobilize fat from Adipose tissue of the mother.

5) Relaxin.

It is a polypeptide which is secreted by corpus luteum, secreted in large quantity by placenta & mammary gland.