19/MHS03/014
PHS 204 ASSIGNMENT.
LACTATION AND GESTATION PERIOD IN A NORMAL PERIODS.

Lactation is the secretion of milk by the mammary glands. The action of suckling an infant. The chief function of lactation is to provide nutrition and immune protection to the young after birth. Due to lactation, the mother- young pair can survive even if food is scarce or too hard for the young to attain, expanding the environmental conditions the species can withstand. Lactation naturally occurs with all post-pregnancy female mammals, although it predates mammals. In humans, the process of feeding milk is called breastfeeding or nursing.

Lactation can be divided into 5 stages:

1. Mammogenesis: Development of breasts to a functional state. Growth of ducts and lobuloalveolar systems. This starts from birth to puberty and continues in pregnancy. Ductal sprouting predominates in first trimester and lobular sprouting occurs more in second trimester hence the breast will contain more glandular epithelial cells than stroma. Just before and during parturition there is a new wave of mitotic activity causing growth and maturation.
Hormonal influence during mammogenesis depends on estrogen and progesterone. Secretion of prolactin and somatotropin by the pituitary gland results in mammary growth. When the hypophyseal-ovarian- uterine cycle is established, there is extensive branching of the duct system and parenchyma proliferation and canalization of the lobuloalveolar units controlled by estrogen and progesterone.
2. Lactogenesis: Synthesis and secretion of milk from the breast alveoli. Stage 1 occurs in mid pregnancy. There is initiation of milk synthesis, alveoli differentiates into secretory cells and prolactin stimulates mammary secretory cells to produce milk.
Insulin and serum growth factor induced cell division of stem cells of the gland and presence of cortisol for formation of alveoli is required for induction of milk synthesis.
Lactogenesis stage 2: From late pregnancy to day 8. This is triggered by rapid drop in progesterone levels after placental delivery. It requires the presence of elevated levels of prolactin and cortisol, insulin, growth hormone and parathyroid hormone to facilitate mobilization of nutrients and minerals. There is a switch from endocrine to autocrine control.
3. Galactokinesis: Ejection of milk outside the breast. This depends on the suckling mechanism of the baby and the contractile action which will express milk from the alveoli into the ducts, this contraction is brought about by the action of oxytocin. Milk let down reflex/ milk ejection reflex, Inhibited by psychic condition/ pain/ breast engorgement.
4. Galactopoiesis: Prolactin is the hormone for maintenance of lactation, and suckling is essential for maintenance of milk secretion. Periodic breast feeding relieves pressure in the ducts and promotes more secretion controlled by autocrine system.
5. Involution: Apoptotic cell death and tissue remodelling post lactation which requires a combination of lactogenic hormone deprivation and local signals to undergo regression and atrophy.

FACTORS AFFECTING LACTATION.

MATERNAL PROBLEMS:
Stress (POST C/S, stressful vaginal delivery or other psychosocial stresses) opiates and beta-endophins are released that block the stimulus- secretion coupling thus reducing oxytocin release.
Polycystic ovarian syndrome.
Theca lutein cysts.
Obesity
Labour analgesia

Placental retension- increased circulating progesterone.
Alcohol dependence.
INFREQUENT SUCKLING/ FAILURE TO EMPTY BREAST: Causes elevated intrammary pressure also disrupts connections between cells and their attachment to the basement membrane disrupting synthesis and secretion of milk components.
PREMATURE INFANTS: Prolactin may not be sufficient,

MEDICATIONS AND LACTATION.

Medications that increase lactation:
Metoclopramide
Domperidpone
Phenothiazine neuroleptics- chlorpromazine,
Risperine
Hypoglycemics
Antihypertensives- methyl dopa, b blockers.

MEDICATIONS THAT REDUCE LACTATION.

Bromocryptine(dopamine agonist)
Progesterone, estrogen- OCP
Clomiphene citrate
Ergotamine
Pseudoephedrine (in cough syrups)
Pyridoxine
Levodopa/ carbidopa.

GESTATION.

Gestation is the period of development during the carrying of the embryo or fetus inside viviparous animals. It is typical for mammals, but also occurs for some non-mammals. Mammals during pregnancy can have one or more gestations at the same time, for example in a multiple birth. Gestation period: The time interval of a gestation is called gestation period. Fetal development period from time to time of conception until birth. For humans, the full gestation period is normally 9 months. In human obstetrics, gestational age refers to the fertilization age plus two weeks. This is approximately the duration since the woman's last menstrual period began. Human pregnancy can be divided roughly into three trimesters, each approximately three months long. The first trimester is from the last period through the 13^{th} week, the second trimester is 14^{th}-27^{th} week. Birth normally occurs at a gestational age of about 40 weeks, though it is common for births to occur from 37 to 42 weeks. From the 9^{th} week of pregnancy (11^{th} week of gestational age), the embryo is called a FETUS.

Various factors can come into play in determining the duration of gestation. For humans, male foetuses normally gestate several days longer than females and multiple pregnancy gestate for a shorter period.