2024
SUMMARY

COMMUNITY MEDICINE

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ARKAN ACADEMY

- Anemia is a reduction in the major RBCs measurements (Hemoglobin, hematocrit, RBC count)
  - Pregnant women are at a higher risk for anemia
  - Anemia during pregnancy is associated with low birth weight, premature birth, maternal mortality
- Common causes of anemia in pregnancy:
  - Physiologic (dilutional): *Plasma volume expansion* is greater than the increase in total RBC volume
    - ✓ Increased RBC production begins at approximately **16 weeks** of gestation
    - ✓ peak hemodilution occurs at *24-26 weeks*
  - Iron Deficiency: is very common in reproductive-age females, even if never pregnant
  - Folate Deficiency: Is the most common cause of **megaloblastic anemia** during pregnancy
    - ✓ Often associated with diets low in animal proteins, fresh leafy vegetables, and legumes
    - ✓ Recommended daily ***folate intake*** to prevent neural tube defects

Premature (preterm): birth occurs before the ***37th week*** of gestation, due to:

- *Brain & Pulmonary hemorrhage*
- *Hypoglycemia, Patent ductus arteriosus*
- *Neonatal sepsis*
- *Anemia*
- *Neonatal respiratory distress syndrome* (underdeveloped lungs)

- Common risk factors for anemia: *twin*, *poor nutrition*, vitamin deficiencies, *Smoking*, *alcohol*
- Adverse outcomes associated with anemia including **placental abruption**, **Preterm birth**, **Severe postpartum hemorrhage**, Increased risk of **maternal mortality** (WHO)

- Urinary tract infections (UTIs) are ***asymptomatic*** bacteriuria, typically occurs during early pregnancy
  - Without treatment it develops a ***symptomatic*** UTI
  - Risk Factors: *short urethra* (close location with the vagina) and pregnants are *immunocompromised*
  - Screening for asymptomatic bacteriuria is performed at **12-16 weeks** gestation
  - Untreated bacteriuria is associated with preterm birth, low birth weight, and perinatal mortality

- Gestational Diabetes mellitus (GDM) is ***hyperglycemia*** that develops during second or third trimester
  - Increased insulin resistance during gestation and usually resolves after pregnancy
  - Women who had GMD, has a higher risk of developing ***type 2 diabetes*** in the future
- GDM risk factors:
  - *GDM in a previous* pregnancy, *Family history of diabetes*, *Pre-pregnancy BMI ≥30*, Medical condition associated with development of diabetes (*polycystic ovary syndrome* [PCOS]), *Older maternal age* and *previous birth of an infant ≥4000 g*
- GDM complications (***Maternal***):
  - *Cesarean section*, *Polyhydramnios* (the excessive accumulation of amniotic fluid), *Pre-eclampsia*, *Type 2 diabetes* (50% mothers develop T2DM within 5-10 years of delivery)
- GDM Complications (***Fetal***):
  - An increased risk of *macrosomia*, *Shoulder dystocia*, *Obesity*, *T2DM*, *Autism spectrum* disorders, *Cardiomyopathy*, Neonatal *respiratory* problems and *metabolic* complications (*hypoglycaemia*), *Stillbirth* and Medically-indicated *preterm* birth

- Maternal mortality: The ***death*** during pregnancy or within 42 days of termination of pregnancy, from any cause related to or aggravated by the pregnancy, but not from accidental or incidental causes
  - It is much higher in developing countries compared to developed ones owing to lack of adequate medical care (health systems failure), socioeconomic factors, and higher total fertility rate

- Maternal mortality **causes** (WHO 2023) are *severe bleeding*, *Infections*, *high blood pressure* during pregnancy, complications from *delivery* and *unsafe abortion*

- Postnatal care helps prevent complications ***after childbirth***
  - WHO recommends routine postpartum evaluation *at 3 days*, *one* to *two weeks*, and *six weeks*
  - It involves *observe physical status*, Advise, and support on *breast-feeding*, provide *emotional & psychological support*, health *education* on weaning and food preparation, advise on *family Planning*

- Child Care: good early childhood development will have a direct positive impact on long-term health
  - Child's emotional and social development are vital for their confidence, communication, mental health and relationships which impact on brain development
- Both ***genes*** and ***environment*** play a role in the shaping of a child brain
  - For ***optimal brain development***: a stimulating environment, adequate nutrients, attentive caregivers, social interactions with community and influential families

- W.B.C (Well Baby Clinics): They monitor baby's growth, development and serious problems
  - Baby's doctor will likely recommend the first well-baby exam within 7 – 10 days after birth
  - WBC services: *physical examination*, *growth*, *development*, *vaccination*, *nutrition*, health *education*

- Infant mortality: Infant deaths are divided into two groups
  - ***Neonatal deaths:*** occur at age *less than 28 days* after birth (pregnancy, delivery, neonatal period)
  - ***Post neonatal deaths:*** occur at ages *28 days and over but under one year* (parental circumstances)
    - ✓ The ***earlier a baby is born***, the ***higher the risk of infant death***

- Causes of Perinatal mortality (PNM):
  - Pregnancy complications:
    - ✓ Low birth weight (*Premature delivery*, *uncontrolled hypertension*, *IUGR or FGR*), *uncontrolled diabetes*, *Antepartum hemorrhage*, *Fetal anomalies* (Anencephaly), *Oligohydramnios*, *Post date*
  - Delivery complication: is mainly Asphyxia due to:
    - ✓ *Cord prolapses*, *Ruptured uterus*, *Placental abruption*, *Sepsis* (prolonged rupture membrane)

- FGR can be caused by *hypertension* and *syphilis*
- Low-birth weight infants who survive may have serious neurological problems, hearing and visual defects and may be subject to slow development throughout life
- Other maternal factors that cause low birth weight: **low pregnancy weight**, **anemia**, **inadequate weight gain during pregnancy**

- Interventions to reduce stillbirths and newborn mortality and morbidity require continuum of care
  - Nutritional Interventions
    - ✓ *Folic acid supplementation* by diet reduces the risk of neural tube defects
    - ✓ *Maternal calcium supplementation* from **20 weeks** to reduce the risk of hypertensive disorders in
    - ✓ *Maternal zinc supplementation* resulted in significant reduction in preterm birth
    - ✓ *Balanced energy and protein supplementation (BES)*, defined as a diet that provides up to 25% of total energy in the form of protein

- Neonatal tetanus: results from ***umbilical cord contamination during unsanitary delivery***, coupled with a lack of maternal immunization (vaccine is 2 dose **tetanus toxoid**)

- Syphilis: Pregnant women with untreated syphilis have a 21 percent ***increased risk of stillbirths***
  - Congenital syphilis (CS) is a disease where a mother with syphilis passes the infection into her fetus
  - Treatment of syphilis with **penicillin**

- HIV: Most children with HIV ***acquire it from their mothers***
  - *Antiretroviral Therapy (ART)* is vital in preventing vertical (mother-to-child) transmission
- Treatment of Diabetes Mellitus and GDM by changing lifestyle and medication
- Adolescence is the phase of life between childhood and adulthood, from ages 10 to 19
  - Adolescents experience rapid physical, cognitive and psychosocial growth
  - During this phase, adolescents ***establish patterns of behavior***
- To grow and develop in good health, adolescents require *sexuality education*, develop *life skills*, *Health services*, safe and supportive *environments*
- Early Adolescence (10 – 13 years): The rate of growth increases, start initiating independence from the family, and desire for privacy (clash between the wish for their autonomy and parental authority)
- Middle adolescence (14 – 16 years): The peak of the height velocity curve where *auxiliary hair and sweat glands* develop, the timing for this is influenced by genetic factors and nutritional status
  - Any ***chronic illness can delay puberty***
- Late Adolescence (17 – 19 years): The body approximates the young adult and development of secondary sexual characteristics is completed, and *career decisions* are finally traced
  - The child gradually *returns to the family*
- Parents, friends, and teachers all pressure adolescents to behave in particular ways
  - Peer pressure is the strongest (Adolescents are particularly susceptible to peer influence)
  - *Peer socialization:* to behave like a group of peers that understand your social norms
  - Adolescents like to ***gain social status*** and they tend to be ***hypersensitive*** to social exclusion
- Most adolescents live in the LMICs and most adolescent deaths are from LMICs
- The top 10 leading risk factors for adolescent morbidity and mortality in both sexes and age include: *Iron deficiency*, *unsafe water*, *unsafe sanitation*, *no access to a handwashing*, *low birthweight* and *short gestation* (less than 38 weeks), *bullying victimization* and particulate matter *pollution*
  - That showed little variation by age group or by sex
- Tobacco, alcohol & illicit drugs
  - A major concern in countries of all income groups
  - In HICs ***drug use disorders*** were among the top 5 causes of adolescent morbidity & mortality (2019)
  - Substance use and tobacco most commonly begins in adolescence
  - Associated with *neurocognitive* alterations (behavioral, emotional, social and academic problems) and a wide range of negative *health and social consequences* (accidents, violence, risky behaviors such as unsafe sex and dangerous driving), *injuries* (road traffic accidents), and *premature deaths*
- It is important to *prohibit the sale of tobacco products to minors* (under 18 years), increasing the *price of tobacco* products through *higher taxes*, *banning tobacco advertising*, ensuring *smoke-free environments*
- Poor diet & Physical inactivity
- Insufficient physical activity is common among adolescents (more common among female)
  - *Recreational screen* time (time spent *watching screens*) is one of the reasons for the high prevalence of both insufficient physical activity and disturbed sleep
- Threats to adequate nutrition may relate to socioeconomic circumstances, lifestyle, eating behaviors and underlying psychosocial factors

- Iron deficiency anemia is the leading nutritional deficiency associated with adolescent morbidity
- WHO describes overweight and obesity as one of the most serious public health challenges

- Mental health

- Multiple interlinked *social*, *family* and *individual factors* have an impact on their mental health
- Exposure to violence, poverty, stigma, exclusion and living in humanitarian and fragile settings can increase the risk of developing mental health conditions

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