

Intrauterine growth retardation

Small for gestational age infant

Objectives:-

Definition of IUGR

Diagnosis of IUGR from clinical features and growth charts

Assessment of their complications

Definition

(less than 10 percent of predicted fetal weight for gestational age)

smaller than the usual amount for the number of weeks of pregnancy.

Birth weight and/or length greater than 2 SD below the mean

Etiology

I-General factors

Race

Geographical situation

Socioeconomic factors

2-Maternal factors

Maternal age

Underweight mother

Poor weight gain in pregnancy

Parity

Race

Infertility previous abortions high altitude teratogens-alcohol, drugs, smoking

Chronic maternal disease

Anything that may interfere with placental blood flow: heart disease, collagen vascular disease, PET post maturity.

3-Placental lesions

Secondary to maternal vascular disease

Chromosomal abnormality, tumor, malformations

4-fetal lesions-

Constitutional (normal genetically small infant) (3-5%)

Chromosomal abnormality

Malformations

Congenital infections

Multiple gestations

Diagnosis

#antenatal detection of fetal growth retardation

L-LMP

2-ultrasound (serial)

3-fetal examination (fetal size)

#after birth (physical appearance):-

Loss of subcutaneous tissue

Peeling loose skin

Wasted appearance

Meconium staining

Wt. or all growth measurements affected

Management

1- During pregnancy, bed rest, identify the cause and treat if possible (stop smoking, treat hypertension, PET) ,Amniocentesis (fetus is very small)

2-early delivery, method, timing.

3-during delivery, fetal distress ,Asphyxia ,Meconium aspiration ,Heat loss

4- Neonatal care

A-infant should be evaluated for causes of IUGR

B-assess the stage of fetal growth retardation

Ponderal index= WT (gm)/ Length (cm) x100

Values<2 between 29-37 weeks

2.2 Beyond 37 weeks

Early growth retardation=normal ponderal index

Late growth retardation=low ponderal index

C-evaluation for specific problems

I-Birth asphyxia

2-hypothermia

3-hypoglycemia:-

Decrease liver stores of glycogen

Impaired gluconeogenesis

Relative hyperinsulinemia

Decreased catecholamine secretions

4-hyperglycemia

5-Respiratory difficulties

-meconium aspiration: with fetal distress meconium in amniotic fluid leads to inhalation of it during reflex gasping response to hypoxia: chemical pneumonitis

Plugging of the airways: pneumothorax

-RDS

-pneumonia

-pulmonary hemorrhage

6-impaired immunity

Defect in cell mediated and humeral immunity, rapidly corrected in infants with early catch up growth persist for 5 years or more in those who remain small

7-polycythemia hypoxia leads to increase in the RBC if pcv >65: capillary stasis (hyper viscosity syndrome)

8-neurological problems

Asphyxia. Unpredictable feeding and sleeping patterns (behavioral changes), jitteriness, less active less responsive to social stimulus

Other steps of management after birth

D- Pathological examination of placenta for congenital infection or infarction

E-Investigations: blood glucose, serum calcium, CXR blood gases) in meconium aspiration, cardiac defect and persistent fetal circulation, tests for congenital infections

F -feeding-early feeding-oral, gavages or I. V

Future growth and development

#short periods of under nutrition and weight loss during illnesses followed by catch-up growth (brief periods of (I.U.G.R) or:

#severe malnutrition throughout early years resulting in permanent stunting (prolonged period of (I.U.G.R)

Sequae

Mental retardation,

Cataract,

Fits

School failure

minor disabilities

Clumsiness

Learning difficulties

Behavioral changes

Self-assessment

Define small for gestational age infant

In SGA neonate what is the significance of:-

Pathological examination of the placenta

Measuring blood sugar

Ponderal index

How can you diagnose SGA prenatally?

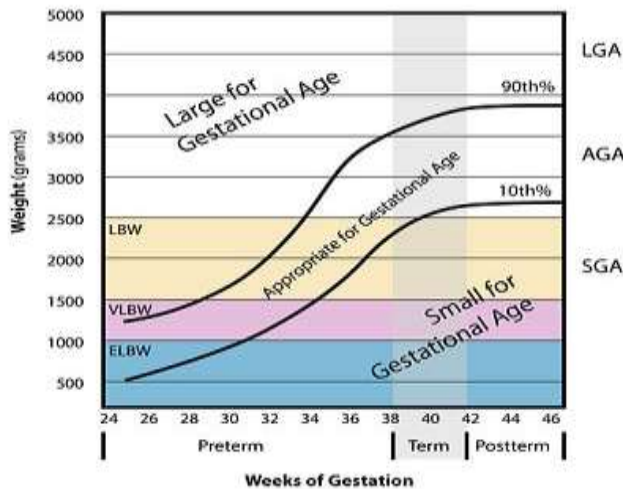
What are respiratory complications of SGA neonate?

What are maternal factors that may contribute to SGA factors?

42 weeks of gestation neonate was delivered to primi mother of birth weight of 1900 gram cried immediately after birth, but had developed subcostal and intercostal recession with rapid breathing

- **What do you call this neonate?**
- **What are possibilities of his respiratory difficulties?**
- **What are other possible complications?**

Large for gestational age infant (more than 90th centile)



Factors Contributing to diagnosis of LGA Newborn

- **Genetic predisposition**
- **Multiparous mother**
- **Male infants are typically larger than females**

- Infants with erythroblastosis fetalis, Beckwith-Wiedemann syndrome, or transposition of the great vessels
- Maternal diabetes
- Terms:
 - Multiparous- having given birth to more than one child
 - Erythroblastosis fetalis- hemolytic anemia in newborns that results from maternal-fetal blood group incompatibility
 - Beckwith-Wiedemann syndrome- umbilical hernia, visceromegaly, macroglossia, gigantism

Complications of the LGA newborn

- Birth Trauma
- Increase of Cesarean births
- Hypoglycemia
- Polycythemia
- Hyperviscosity

What condition is associated with the newborn being LGA?

Infant of diabetic mother

What causes the Excessive fetal growth?

IDM Characteristics

- ↑ weight due to ↑ wt of visceral organs
- Cardiomegally
- ↑ body fat
- ↑ growth due to constant exposure to maternal glucose
 - Glucose crosses the placenta, but insulin doesn't Infant responds with ↑ insulin production
 (pseudo growth hormone)

clinical Manifestations:

Large size – Macrosomia; enlarged spleen, heart, liver

Tremors

Cyanosis

Apnea

Temperature instability

Poor sucking and feeding

Hypotonic muscle tone / Lethargy

Nursing Interventions

Assess blood glucose

Intervene if < 45mg/dl:

Feed infant

Reevaluate blood sugar 30-45 minutes later

If no improvement:

IV of DW 10%

Self assessment

What do you call 39 weeks of gestation full term neonates with the following birth weights:

- **4250 gm**
- **3050 gm**
- **2100 gm**

Neonate was delivered to P6 mother of 40 weeks of gestation, his bwt was 4.750 gram and he was presented with excessive tremor

- **What is most likely diagnosis?**
- **What is the cause of his symptom?**
- **What other complications could he develop?**