



- **How would you define Intrauterine Growth Restriction (IUGR)?**

- **Definition (1):** fetus with estimated fetal weight < 10<sup>th</sup> percentile for gestational age.
- **Definition (2):** a baby with a birth weight < 2,500 grams. However, 70% of these babies are considered to be constitutionally small (small mama + small papa = small baby ☺).

- **How do you diagnose IUGR?**

- **By doing routine ultrasound and following the growth charts of the baby which measure these parameters:**
  - ✓ Head Circumference (HC).
  - ✓ Abdominal Circumference (AC).
  - ✓ Femoral Length (FL).
  - ✓ Estimated Fetal Weight (EFW).

- **What are the causes of IUGR?**

|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Fetal causes (resulting typically in symmetric IUGR)</b>      | <ul style="list-style-type: none"> <li>• <b>Aneuploidy</b> (including: trisomy 21, trisomy 18 and trisomy 13)</li> <li>• <b>Fetal infections (TORCH):</b> <ul style="list-style-type: none"> <li>✓ (T): Toxoplasmosis</li> <li>✓ (O): Others (e.g. HBV)</li> <li>✓ (R): Rubella</li> <li>✓ (C): Cytomegalovirus</li> <li>✓ (H): Herpes Simplex Virus</li> </ul> </li> <li>• <b>Congenital anomalies:</b> <ul style="list-style-type: none"> <li>✓ Congenital heart disease</li> <li>✓ Neural tube defects</li> <li>✓ Ventral wall defects</li> </ul> </li> </ul> |
| <b>Placental causes (resulting typically in asymmetric IUGR)</b> | <ul style="list-style-type: none"> <li>• <b>Infarction</b></li> <li>• <b>Placental abruption</b> (premature separation of a normally implanted placenta most commonly due to blunt trauma and this will result in painful late trimester bleeding)</li> <li>• <b>Twin-Twin Transfusion Syndrome</b> (occurs with monozygotic monochorionic twins in which one baby will act as a donor while the other acts as a recipient)</li> <li>• <b>Velamentous cord insertion</b> (the umbilical cord is not inserted centrally in the placenta)</li> </ul>               |
| <b>Maternal causes (resulting typically in asymmetric IUGR)</b>  | <ul style="list-style-type: none"> <li>• <b>Hypertension</b> (which causes reduced utero-placental blood flow and placental insufficiency)</li> <li>• <b>Small vessel diseases</b> (e.g. SLE and long-standing type-1 diabetes)</li> <li>• <b>Malnutrition</b></li> <li>• <b>Smoking</b></li> <li>• <b>Alcohol</b></li> <li>• <b>Street drugs</b></li> </ul>                                                                                                                                                                                                     |



- **There are two types of IUGR:**

| <b>Symmetric IUGR</b>                                                                                                                           | <b>Asymmetric IUGR</b>                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Head and abdomen are both small                                                                                                                 | Head is normal but abdomen is small                                                                                                                                                                                                                                                                                       |
| Due to fetal causes (aneuploidy, infections or congenital anomalies)                                                                            | Due to maternal or placenta causes (as mentioned previously)                                                                                                                                                                                                                                                              |
| <b>Workup:</b> <ul style="list-style-type: none"><li>• Detailed sonogram</li><li>• Karyotype</li><li>• Screening for fetal infections</li></ul> | <b>Monitoring:</b> <ul style="list-style-type: none"><li>• Serial ultrasounds (every 2 weeks)</li><li>• Non-Stress Test (NST)</li><li>• Amniotic Fluid Index (AFI: it is often decreased especially if uteroplacental insufficiency is severe)</li><li>• Biophysical Profile</li><li>• Umbilical artery Doppler</li></ul> |