

# ABNORMAL FETAL GROWTH: BIG AND SMALL

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# LEARNING OBJECTIVES

- At the conclusion of this presentation, the neonatologist will be able to:
  - List the most common explanations for fetal macrosomia.
  - Describe the most likely complications of fetal macrosomia.
  - List the most common causes of fetal growth restriction.
  - Describe the most useful tests to evaluate the growth-restricted fetus.

# OVERVIEW

- LGA Fetus
  - Etiology
  - Diagnosis
  - Complications
- Growth restricted fetus
  - Etiology
  - Diagnosis
  - Monitoring
  - Management



# THE LGA FETUS

- Definitions
  - LGA:  $> 90^{\text{th}}$  percentile for gestational age
  - Macrosomia:  $> 4000$  grams



# THE LGA FETUS: ETIOLOGY

- Genetics
- Maternal weight
  - At her own birth
  - Before pregnancy
  - Weight gain during pregnancy
    - Ideal weight gain in a person with a normal BMI is 25-35 pounds

# THE LGA FETUS: ETIOLOGY

- Diabetes
  - Gestational diabetes
  - IDDM of shorter duration
- Anomalies
  - Macrocephaly
  - Hydrops



# THE LGA FETUS: DIAGNOSIS

## Sonography



Biparietal diameter  
Abdominal circumference  
Femur length

Fundal height > expected (2cm greater than weeks of gestation)

# THE LGA FETUS: PERIPARTUM COMPLI- CATIONS

- Higher frequency of cesarean delivery
- Shoulder dystocia → birth injury
  - Brachial plexus
  - Clavicular fracture
  - Vascular – subclavian vessels
  - Brain - HIE
- Neonatal hypoglycemia



# THE LGA FETUS: MANAGE- MENT

- Serial ultrasounds to assess fetal weight
- Avoidance of instrumental vaginal delivery, especially in patients with an abnormal labor pattern
- Selected use of scheduled cesarean delivery
  - Non-diabetic → EFW > 5000 grams
  - Diabetic → EFW > 4500 grams

## FGR: ETIOLOGY

- Constitutionally small fetus
- Uteroplacental insufficiency
  - Hypertensive disorders
  - Diabetes
  - APLS
- Genetic abnormalities
  - Principally, the trisomies



# FGR: ETIOLOGY

- Multiple gestation
- Infection
  - CMV
  - Syphilis
  - Toxoplasmosis
  - Rubella
- Environmental toxins
  - Cigarettes
  - Opioids
  - Amphetamines
  - Cocaine



# FGR: DIAGNOSIS

- Fundal height < expected
  - FH should equal GA plus/minus 2 cm
- Ultrasound
  - EFW < 10<sup>th</sup> percentile
  - AC < 10<sup>th</sup> percentile



## FGR: DIAGNOSIS

TEST	OBJECTIVE
Physical examination	Evaluate for hypertension and infection
LAC, ACL, beta 2 macroglobulin	Assess for APLS
Glucose challenge	Screen for diabetes
Serology	Screen for infection
NIPS	Screen for genetic abnormality
Amniocentesis	Screen for genetic abnormality or congenital infection

# FGR: SURVEILLANCE

- Modified BPP once to twice weekly
  - NST
  - AFI
- Weekly UA doppler
- Complete BPP



# FGR: RED FLAGS FOR INTERVENTION



- Oligohydramnios
- Non-reassuring testing
- Abnormal UA doppler
  - Elevated S/D ratio
  - Elevated PI and RI
  - AEDF
  - REDF
- Lack of interval growth

## FGR: INTERVENTION

- Timing of delivery
  - Typically at 37-39 weeks
- Method
  - Vaginal versus cesarean





## CONCLUSIONS



CONDITION	KEY POINTS
LGA	Principal concern is birth injury Selected use of cesarean delivery
FGR	Principal causes are maternal vascular disease, genetic abnormalities, and infection Careful surveillance is essential to prevent FDIU