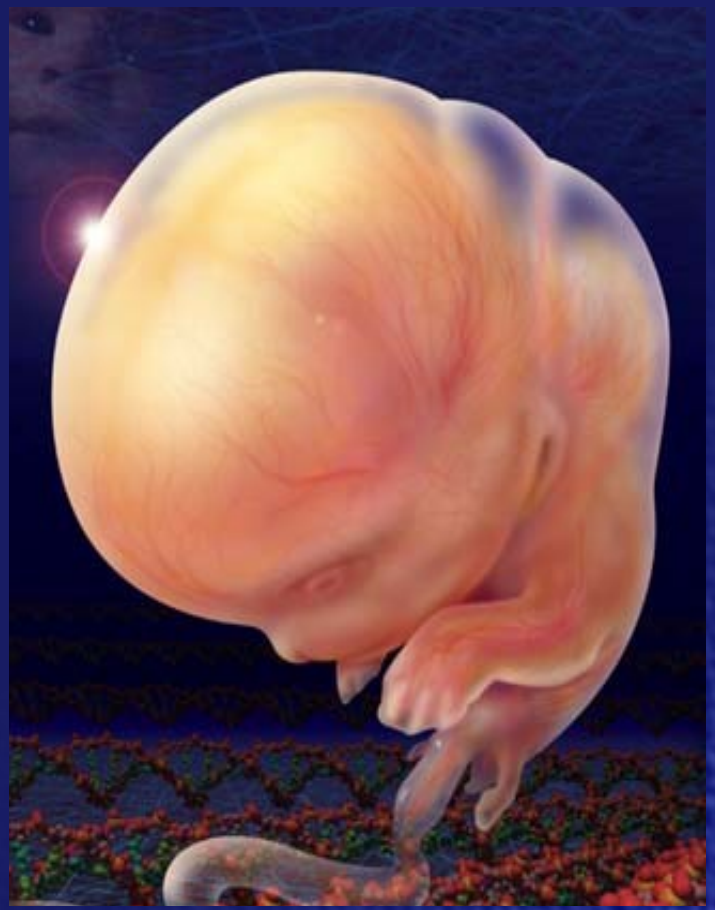
COMPROMISED FETUS - OBSTETRIC MANAGEMENT



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COMPROMISED FETUS

Management : Basic aim is to deliver as mature fetus as possible but in good conditions before hypoxic damage has occurred.

Barring few situations very little effective antenatal treatment is available and at the same time neonatal survival chances of premature babies have increased a lot.

FETAL GROWTH RESTRICTION

Uteroplacental dysfunction

↓

↓↓ supply of nutrient and oxygen to fetus

↓

IUGR

↓

Redistribution of flow with preferential supply to brain and heart

Further hypoxia

Cardiac failure

↓

Hypoxic brain damage

Anaerobic glycolysis

↓

Metabolic acidosis

COMPROMISED FETUS - ANTEPARTUM MANAGEMENT

- Bed rest - Hospital / home
- Diet - Balanced caloric diet
  supplementation Zn, Fish oil
- Avoidance of drugs, smoking, alcohol, stress.
- Oxygen - Short term
- Low dose aspirin - ?

BARKER'S HYPOTHESIS

- Prof. David Barker (U.K.) - Fetal origin of adult disease

Hypertension
Stroke
Heart attacks
Diabetes
Some cancers

There is sufficient evidence from epidemiological studies and animal experiments.

COMPROMISED FETUS - ANTEPARTUM MANAGEMENT

- STEROIDS
- Termination if lethal anomaly
- Rx of cause → infection, medical disease
- Use of heparin, plasma expanders & tocolytics are not found useful
- Fetal surveillance

STEROIDS

STEROIDS

- 12 mg I/M 2 doses of DM or BM 12 / 24 hrs apart

→↓↓ RDS ↓↓ ICH

→↓↓ NEC ↓↓ Premature closure of PDA

→↑↑ the effects of artificial surfactant

- Stabilizes the B.P. in newborn

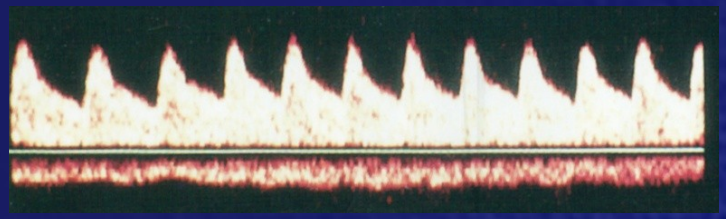
STEROIDS

FETAL SURVEILLANCE

- DFMC
- NST → twice a week
- BPP → once a week
- Modified BPP (NST + AFI) → twice a week
- Doppler study - weekly

DOPPLER STUDIES

Doppler has become the primary tool in diagnosis and management of IUGR



$$PI = \frac{S - D}{mean}$$

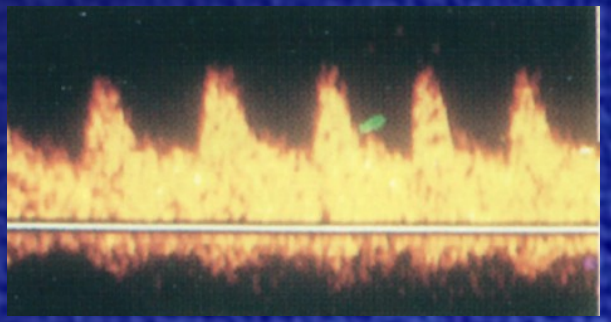
$$RI = \frac{S - D}{S}$$

$$S/D = \frac{S}{D}$$

DOPPLER SEQUENCE IN IUGR

IUGR
↓
Hypoxia
↓
Acidosis
Death

S/D ratio in umbilical artery ↑↑
PI in umb. Art. ↑↑
↓
PI in middle cerebral artery ↓↓
↓
Absent end diastolic flow in umbilical artery
↓
Reverse end diastolic flow in umbilical artery
venous pulsations appear.



ABNORMAL TESTS IN IUGR

IUGR → Death

FHR Trace	→	Slightly abnormal	Abnormal decelerations	Severe abnormalities
BPP →	8	6	4	2
Doppler →	Umbilical PI↑↑	Middle PI↓↓	Umbilical Artery-Absent / Reverse flow	Abnormal Venous blood flow
Amniotic Fluid	→	Slight decrease	→ Oligo hydramnios	

FETAL SURVEILLANCE & MANAGEMENT

USG / Cordocentesis → If congenitally abnormal or infection →Rx appropriately

If normal → umbilical Doppler

Normal

Weekly doppler
NST twice a week
Or BPP weekly
Or Modified BPP twice a week
↓
Delivery if 36 weeks or oligo

Abnormal

Absent end diastolic
↓
Venous study
↓
Normal
↓
Daily NST & Venous doppler

Abnormal

Reverse end diastolic flow
↓
Deliver

Compromised fetus Mx

MEDICAL DISEASES

- Anemia
- Diabetes
- PIH
- Renal disease

INFECTIONS -

- TORCH, Malaria, HIV, Syphilis

ANTIPHOSPHOLIPID SYNDROME

POST TERM PREGNANCY

- Naegele's rule ? (February)
- USG at 40th week
- Induction at 41 weeks
- Proper intrapartum monitoring

OLIGOHYDRAMNIOS

- Rule out anomalies & PROM
- Daily fetal testing
- Deliver if abnormal result / 34 weeks

COMPROMISED DUE TO RUPTURE OF MEMBRANES

PPROM

- No P/V Examination
- Swabs, CBC, CRP
  Amnioinfusion ?
- Antibiotics
- Steroids
- Monitoring
-
- Termination
- PROM Fence ?

Rh ISOIMMUNIZATION

- Direct antibody levels easy to assess and more accurate > 20 IU / ml
- Amniocentesis and spectrophotometric analysis
- Intrauterine transfusion if <32 weeks
  - Intravascular
  - Intraperitoneal
- Plasmapharesis ?

MULTIPLE PREGNANCY

If discordant growth → one baby may be compromised

If it is due to TTTS → Amniocentesis

→ Septostomy

→ Laser photo coagulation of communicating vessel

If one baby dies → Serial fibrinogen estimation

→ Delivery if it falls below 100mg%

Compromised fetus intrapartum Mx

Acute Hypoxia	Subacute Hypoxia
Cord Prolapse	IUGR
Placental abruption	PIH
Scar dehiscence/ rupture	Post term
Hypertonus	Oligohydramnios
* Urgent LSCS	* Emegency LSCS

INTRAPARTUM RESUSCITATION

- Lateral position
- Hydration
- Oxygen
- Dextrose - (except in severe IUGR)
- Amnioinfusion
- Tocolysis

FETAL THERAPY

Medical therapy

Transplacental

Prematurity	-	Steroids
CAH	-	Dexamethasone
S V tachycardia	-	Digoxin

Direct

Immune hydrops	-	IU transfusion
Nonimmune hydrops	-	Digoxin + Lasix
Hemopoetic disorder	-	Stem cell transfusion

FETAL SURGERY

CNS	Hydrocephalus	Shunt
	Spina bifida	Closure
	Sacrococ. Teratoma	Excision
RS, CVS	Cong. Heart block	Pacing
	Chylothorax	Thoracocentesis
Urinary	CDH	Closure, PLUG
	Obstructive Uropathy	Shunt, Vesicostomy

Fetoscopic surgery is better

"Open fetal surgery is still at an experimental stage"

SUMMARY

- Compromised fetus require management at tertiary care centre.
- Colour doppler is the best method in the management of such fetus.
- LSCS is the preferred method of delivery.
- Direct fetal therapy is under research.
- With improved neonatal care survival of more and more preterm baby is increasing.

Sir Isaac Newton

Grossly Preterm & IUGR Baby

"The only people who never make mistakes are those who have never taken a decision"

- Jack Straw

Thank you