

Iatrogenic (1/3)

#### Spontaneous

- > Spontaneous
- ≻ PROM



#### High Perinatal Mortality and Morbidity

(Neurodevelopmental Impairment, Disability and Handicap)

- Accurate Diagnosis
- Appropriate Intervention
  - ≻ Steroids/Tocolytics
  - ≻Group B strep Prophylaxis
  - ➤ MgSo4 for neuroprotection
  - ► Planned Newborn care



### Diagnosis

- Regular Painful Uterine contractions
- Cervical changes [Dialation and/or effacement]



### □ Specific Criteria for Diagnosis

Uterine Contractions ( >4 every 20 minutes or

>8 in 60 minutes)

Plus Cervical dilatation > 3cm

#### or

Cervical Length <20mm on TVS</p>

#### or

Cervical Length 20 to <30mm on TVS and</p>

(+)ve fetal fibronectin



# PATHOGENESIS OF PRETERM LABOR

four primary pathogenic processes that result in a final common pathway ending in spontaneous preterm labor and delivery:

- Activation of the maternal or fetal hypothalamic-pituitary-adrenal axis associated with either maternal anxiety and depression or fetal stress
- •Inflammation and infection
- •Decidual hemorrhage
- •Pathological uterine distention

#### Rislofactons for preterm birth

- PTB: preterm birth; LEEP: loop electrosurgical excision procedure; D&E: dilation and evacuation; BMI: body mass inde Prior PTB
- Prior cervical surgery (eg, cone biopsy, LEEP)
- Multiple D&Es
- Uterine anomalies

#### **Maternal demographics**

- <17 or >35 years of age
- Lower educational level (eg, <12 grades)</p>
- Single marital status
- Lower socioeconomic status
- Short interpregnancy interval (eg, <6 months)</p>
- Other social factors (eg, poor access to medical care, physical abuse, acculturation)

#### Nutritional status/physical activity

- BMI <19 kg/m2 or prepregnancy weight <50 kg (<120 lb)</p>
- Poor nutritional status
- Long working hours (eg, >80 hours/week)
- Hard physical labor (eg, shift work, standing >8 hours)

#### **Current maternal/pregnancy characteristics**

- Conception by assisted reproductive techniques (eg, IVF)
- Multiple gestation
- Fetal disorder (eg, chromosome anomaly, structural abnormality, growth restriction, death, etc)
- Vaginal bleeding (eg, 1st and 2nd trimester, placenta previa, abruption)
- Bolton and the standard standards

### Diagnostic evaluation

### > History

- Menstrual like cramping
- Mild irregular contractions
- Lower backache
- Pressure sensation on vagina and pelvis
- Vaginal discharge of mucus ( clear / pink/bloody)

#### **≻**Spaculum

- wet, non lubricated
- cervix > 3cm diagnostic
- check for bleeding
- membrane status



#### ≻ Swab

- fFN
- Microbiology
- Exclude placenta previa and PPROM



#### ≻TVS

- Cervical length <2cm</li>
- between 2 and 3cm plus fFN



### Fetal fibronectin (fFN)

•extracellular matrix protein present at the decidual-chorionic interface.

- •subclinical infection or inflammation,
- •bleeding
- •uterine contractions

provides an opportunity for interventions that can improve neonatal outcome

- •antenatal corticosteroid therapy,
- •group B streptococcal infection prophylaxis,
- <u>magnesium sulfate</u> for neuroprotection,
- •transfer to a facility with an appropriate level nursery, if necessary

•also avoid unnecessary and sometimes costly intervention



### Management

- steroids
- tocolytics
- antibiotics
- Mgso4
- counselling
- Mode of delivery
- neonatalogy



# Steroid therapy

- Reduction in RDS
- Intraventricular hemorrhage
- Necrotizing enterocolitis
- Neonatal mortality
- Systemic infection in the first 48 hours of life

# Steroids Mechanismof action

- Accerlerated development of type1 &2 pneumocytes
- Structural and biochemical changes (surfactant)
- Improve lung mechanics & gas exchange

# Steroids indications

- EL-LSCS < 39 weeks indicated
- Vaginaldelivery < 34 weeks

# MgSo4

- Cerebral palsy leading risk factors are prematuarity and low birth weight
- MgSo4 reduces incidence and severity of Cerebral palsy

- Stabilization of cerebral circulation by stabilizing blood pressure and normalizing cerebral blood flow
- Prevention of excitatory injury by stabilization of neuronal membranes and blockade of excitatory neurotransmitters, such as glutamate
- Protection against oxidative injury via antioxidant effects
- Protection against inflammatory injury via antiinflammatory effects

### Tocolytics

# reduce the strength and frequency of uterine contractions

### delay delivery for 48 hours

## Contraindications

Maternal/fetal risks of prolonging pregnancy are greater than the risks associated with preterm birth

- Intrauterine fetal demise
- Lethal fetal anomaly
- Nonreassuring fetal status
- Preeclampsia with severe features or eclampsia
- Maternal hemorrhage with hemodynamic instability
- Intraamniotic infection
- Preterm prelabor rupture of membranes

### Uterine Relaxants (Tocolytics)



Indomethecin (NSAID)

Nifedipine (CA Channel Blocker)

Magnesium Sulfate

Terbutaune Adrenergic Agonist)





## Figure: Survival in 1995 and 2006, showing for 2006 those babies for whom care was intended



#### Table 2.

Severe or moderate-to-severe NDD rates at 4 to 8 years of age in surviving children born extremely preterm

Gestational age	Rate of severe NDD (%, 95% CI)	Rate of moderate-to-severe NDD (%, 95% CI)
22 weeks (n=12 for both severe and moderate-to- severe NDD rates)	31% (12, 61)	43% (21, 69)
23 weeks (n=73 for severe NDD rates) (n=75 for moderate-to-severe NDD rates)	17% (9, 28)	40% (27, 54)
24 weeks (n=175 for severe NDD rates) (n=210 for moderate-to-severe NDD rates)	21% (14, 30)	28% (18,41)
25 weeks (n=337 for severe NDD rates) (n=441 for moderate-to-severe NDD rates)	14% (10, 20)	24% (17, 32)

\*Most children have no or mild NDD with estimates of: 57% at 22 weeks GA, 60% at 23 weeks, 72% at 24 weeks and 76% at 25 weeks. Mild NDD include neurobehavioural difficulties (e.g., autism, attention-deficit) that could challenge a child and their family