The Pre-Term & Post-Term Infant

Post-Term Infant
Determining Gestational Age

* Differentiate between pre-term and IUGR
* Use of Ballard Score
* Physical characteristics
Definitions

* Gestational age - time from conception to birth that fetus stays in uterus

* preterm - infant less than 38 weeks

* postterm - infant more than 42 weeks

* Near-term preterm - 34-37 weeks
Causes of Preterm Deliveries

- multiples
- maternal illness
- gestational hypertension
- premature rupture of membranes
- placenta previa or abruption
- smoking and drug/alcohol abuse
Nursing Goals for Preterm Newborn

* Improved respirations
* maintain body heat
* conserve energy
* prevent infection
* provide nutrition/hydration
* good skin care
* support/encourage parents
Preterm Physical Characteristics

- transparent/loose skin
- visible superficial veins
- lack of subcutaneous fat
- lanugo to forehead, shoulders and arms
- abundant vernix
- soles of feet smooth
- small genitals
## Neuromuscular Maturity

<table>
<thead>
<tr>
<th>Score</th>
<th>Posture</th>
<th>Square window (wrist)</th>
<th>Arm recoil</th>
<th>Popliteal angle</th>
<th>Scarf sign</th>
<th>Heel to ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>![Image]</td>
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## Physical Maturity

<table>
<thead>
<tr>
<th>Physical Maturity</th>
<th>Skin</th>
<th>Lanugo</th>
<th>Plantar surface</th>
<th>Breast</th>
<th>Eye/Ear</th>
<th>Genitals (male)</th>
<th>Genitals (female)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sticky, friable, transparent</td>
<td>None</td>
<td>Heel-toe 40–50 mm: -1, &lt; 40 mm: -2</td>
<td>Imperceptible</td>
<td>Lids fused loosely: -1 tightly: -2</td>
<td>Scrotum flat, smooth</td>
<td>Clitoris prominent, labia flat</td>
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<tr>
<td></td>
<td>Gelatinous, red, translucent</td>
<td>Sparse</td>
<td>&gt; 50 mm, no crease</td>
<td>Barely perceptible</td>
<td>Lids open; pinna flat; stays folded</td>
<td>Scrotum empty, faint rugae</td>
<td>Clitoris prominent, small labia minora</td>
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<tr>
<td></td>
<td>Smooth, pink; visible veins</td>
<td>Abundant</td>
<td>Faint red marks</td>
<td>Flat areola, no bud</td>
<td>Slightly curved pinna; soft, slow recoil</td>
<td>Testes in upper canal, rare rugae</td>
<td>Clitoris prominent, enlarging minora</td>
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<tr>
<td></td>
<td>Superficial peeling and/or rash; few veins</td>
<td>Thinning</td>
<td>Anterior transverse crease only</td>
<td>Stippled areola, 1–2 mm bud</td>
<td>Well curved pinna; soft but ready recoil</td>
<td>Testes descending, few rugae</td>
<td>Majora and minora equally prominent</td>
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<tr>
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<td>Cracking, pale areas; rare veins</td>
<td>Bald areas</td>
<td>Creases, anterior 2/3</td>
<td>Raised areola, 3–4 mm bud</td>
<td>Formed and firm, instant recoil</td>
<td>Testes down, good rugae</td>
<td>Majora large, minora small</td>
</tr>
<tr>
<td></td>
<td>Parchment, deep cracking; no vessels</td>
<td>Mostly bald</td>
<td>Creases over entire sole</td>
<td>Full areola, 5–10 mm bud</td>
<td>Thick cartilage, ear stiff</td>
<td>Testes pendulous, deep rugae</td>
<td>Majora cover clitoris and minora</td>
</tr>
<tr>
<td></td>
<td>Leathery, cracked, wrinkled</td>
<td>Mostly bald</td>
<td>Creases over entire sole</td>
<td>Full areola, 5–10 mm bud</td>
<td>Thick cartilage, ear stiff</td>
<td>Testes pendulous, deep rugae</td>
<td>Majora cover clitoris and minora</td>
</tr>
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<table>
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<tr>
<th>Maturity Rating</th>
<th>Score</th>
<th>Weeks</th>
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<tr>
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<td>-10</td>
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Respiratory Distress

- Under developed lungs
- weak muscles
- immature respiratory center in brain
- weak gag and cough reflexes
- deficient in surfactant
RDS

* hyaline membrane disease
* lung immaturity
* surfactant deficiency (needed for absorption of oxygen by the lungs)
* Lecithin/sphingomyelin (L/S ratio)-test run on amniotic fluid
RDS

- Signs and symptoms -
  - Rapid respiratory rate (<60)
  - Grunting
  - Nasal flaring
  - Cyanosis
  - Retractions (intercostal and sternal)
RDS Treatment

- Give mother betamethasone to increase surfactant in-utero
- Surfactant administration via ET tube
- Monitor VS, O2 sats, arterial blood gas
- Keep warm (cold stress alters surfactant production)
- O2 and IV fluids
Apnea

- cessation of breathing for 20 seconds or longer
- related to immaturity of nervous system
- can be accompanied by bradycardia (>100) and cyanosis
Hypoxia

* inadequate oxygenation at the cellular level

* detected by pulse oximetry (measuring O2 on the Hgb in circulating blood)

* 92% or more is normal

* anemia affects O2 sat

* pre and post ductal O2 sat
Cold Stress

- Poor control of body temp
- related to many factors
  - lack of brown fat
  - immature temp regulation in brain center
  - weak muscles (tone)
Cold Stress

* Signs and symptoms
  * decreased skin temp
  * increased RR with apnea
  * bradycardia
  * mottling of skin
  * lethargy
A. Conduction

B. Convection

C. Evaporation

D. Radiation
Hypoglycemia

- No adequate glycogen and fat stores
- Increased needs (stresses living outside of uterus too soon)
- Blood sugars less than 40 mg/dL
- S/S - tremors, weak cry, lethargy, convulsions
Necrotizing Enterocolitis (NEC)

* Hypoxia or sepsis can decrease blood supply to lining of bowel wall.

* S/S - abdominal distention, bloody stool, diarrhea, bilious vomit

* Treatment - VS, withholding PO feedings, bowel sounds, measure abdomen.

* Given antibiotics, TPN, may need bowel resection
Hyperbilirubinemia

- Known as icterus or jaundice
- Liver unable to clear by-products of RBC destruction
- Presents as yellow color in skin (starts in head and progresses down)
- High levels - >5mg/dL in 24 hrs, or >12.9 mg/dL
- Preterm infant has a slower rise in bilirubin levels which last longer
Hyperbilirubinemia

- Goal to prevent kernicterus
- Nursing care - observations of skin and progression
- Initiation of phototherapy
- Monitor bilirubin levels (scans/labs)
- Monitor I & O
Nursing Observation
- Signs to Report

- General activity
- fontanelles
- eyes
- respirations
- pulse
- abdomen
- cord
- feedings
- voiding
- stools
- mucous membranes
- color
- skin
Postterm Newborn

- pregnancy beyond 42 weeks
- placenta does not function adequately as it ages
- morbidity rates are higher than those for term infants
Postterm Newborn

- Appearance:
  - long, thin
  - skin loose
  - little lanugo or vernix
  - skin dry, cracked, peeling
  - long fingernails
  - meconium in amniotic fluid
Postterm Newborn

Problems:

- hypoxia/asphyxia due to deteriorating placenta
- meconium aspiration
- hypoglycemia
- polycythemia (hyperbilirubinemia)
- birth trauma (if large infant)