Normal Newborn Baby

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Objectives

By the end this lecture the student will be able to

- Define the normal newborn
- Assess a new born using APGAR score
- Know the purpose and significance of APGAR score
- Define normal anthropometrics of a newborn
- List the neonatal reflexes
Newborn stage is the first 4 weeks of life. It is transitional period for an individual as he transfers from intrauterine life to extra – uterine environment, where newborn infant has to adapt to it.
**Physical growth:**

a. **Weight**: Most newborn infants weight 2.5Kg to 4 kg at birth. They lose 5% to 10% of weight by 3 to 4 days after birth as result of: minimal nutrition urine and meconium and loss of extracellular fluid

- They gain birth weight by 10th days of life.
- Gains $\frac{3}{4}$ kg by the end of the first month
b. **Height**: Average boy’s is 50 cm and 49 cm for girls (normal range for both sexes 47.5 to 53.75 cm).

Gain 3.5 cm by the end of the first month.
c. **Head circumference:** 33 to 35 cm. Head is \( \frac{1}{4} \) of the total body length. The skull has two fontanels: the anterior and the posterior fontanels. It increased by 2 cm by the end of 1\textsuperscript{st} month.
The anterior fontanel is diamond in shape. The junction of the sagittal, corneal, and frontal sutures forms it, i.e. it is located between 2 frontal and 2 parietal bones. It is 3-4 cm in length and 2-3 cm width. It closes at 12 to 18 months of age.
The posterior fontanel is triangular and is located between occipital and 2 parietal bones, where the junction of sagittal sutures and lambdoidal suture forms it. It closes usually by the end of the first month of age.

d. **Chest circumference**: 30.5 to 33 cm (usually 2-3 cm less than head circumference).
Physiological Growth:
The APGAR scoring chart is used to
- evaluate the conditions of the baby at birth,
- determine the need for resuscitation,
- evaluate the effectiveness of resuscitative efforts,
- to identify neonates at risk for morbidity and mortality.
The Apgar score is used to evaluate:

- brain function at birth
- circulatory status at birth
- the effectiveness of respiratory and circulatory adaptations thereafter
- which babies need active assistance (resuscitation).
<table>
<thead>
<tr>
<th>Sign</th>
<th>Score</th>
<th>Score</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart rate</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Absent</td>
<td>Below 100</td>
<td>Over 100</td>
</tr>
<tr>
<td>effort</td>
<td>Absent</td>
<td>Weak cry</td>
<td>Strong cry</td>
</tr>
<tr>
<td>Muscle tone</td>
<td>Limp</td>
<td>Some flexion</td>
<td>Strong</td>
</tr>
<tr>
<td>Reflex response</td>
<td>None</td>
<td>Weak</td>
<td>Strong</td>
</tr>
<tr>
<td>Color*</td>
<td>Pale, blue</td>
<td>Body pink, extremities blue</td>
<td>Healthy pink</td>
</tr>
</tbody>
</table>

* Note: color criteria vary by race and ethnic group
Significance of Apgar score

- **Healthy newborn**: 7-10 at both 1 and 5 minutes
- **Moderately depressed newborn**: 3-6 (Need resuscitation)
- **Severely depressed newborn**: 1-3 (Intensive resuscitation)
Vital signs:

A. **Temperature:** At birth, newborn infant’s temperature is slightly higher than mother. It will drop immediately after birth in adjustment to delivery room temperature unless the newborn infant is kept warm immediately after birth.

B. Temperature rises to normal within about 8 hours. Temperature of newborn infant is usually 35.5 to 37.5 °C.

C. **Pulse:** 120 to 150 / min. it is usually rapid and irregular.

D. **Respiration:** 35 to 50 / min. It is usually irregular in depth, rate, and rhythm.
RESPIRATION
Normal Variations
30 to 60 respirations per min
Average - 40 respirations per min

HEART RATE (APICAL)
Normal Variations
100 to 160 beats per min
100 while sleeping
160 while crying

TEMPERATURE
Rectal
90.0° F to 99.5° F
(35.6° C to 37.5° C)

Axillary
97.6° F to 98.6° F
(36.5° C to 37.0° C)

BLOOD PRESSURE (AT BIRTH)
Average
75/42

Systolic
60 to 80 mm Hg

Diastolic
40 to 50 mm Hg
Senses:

a. **Touch:** It is the most highly developed sense. It is mostly at lips, tongue, ears, and forehead.

   The newborn usually is comfort with touch.

b. **Vision:**

   1. Pupils react to light.
   2. Bright lights appear to be unpleasant to newborn infant.
   3. Follow objects in line of vision.
c. Hearing:

1. The newborn infant usually makes some response to sound from birth.
2. Ordinary sounds are heard well before 10 days of life. The newborn infant responds to sounds with either cry or eye movement, cessation of activity and / or startle reaction.

**d. Taste:**

Well developed as bitter and sour fluids are resisted while sweet fluids are accepted.

**e. Smell:**

Only evidence in newborn infant’s search for the nipple, as he smell breast milk.
Development:
A. Motor Development:

movements are random, diffuse, and uncoordinated.

1. Lack muscular strength to hold head steady and erect (his head sink down).
2. Reflexes carry out bodily functions and responses to external stimuli.
Rooting

Sucking reflex

Blink Reflex - bright light shining in eyes or clap hands near eyes - closes eyelids quickly
place a finger in the neonate's palm
neonate grasps the finger

Stepping reflex

neonate makes walking motions with both feet
MORO reflex

Baby is held horizontally, then suddenly lowered a few inches, or the head may be lowered a few inches, or a loud sudden noise will make baby's arms fling out and then come together as hands open then clutch.
C. Emotional Development:

Newborn infant expresses his emotional just through cry for hunger, pain, or discomfort sensation.
Needs of newborn:
1. **Maintenance of respiration:**

Respirations must be established and maintained at birth. For this to occur, the neonate must cry loudly periodically. Failure to cry may be due to several causes; mainly is the obstruction of the air passage with mucus. The infant can be positioned on abdomen with the head lowered 15-30 degrees to facilitate mucous drainage.
2. Maintenance of body temperature:

The temperature of the new born baby usually drops immediately after birth. Since thermal regulation of the neonate is of vital importance in sustaining life the temperature should be maintained within a normal range 36.5-37.5°C.; through proper dressing, the head can be covered with a cap if heat loss is a problem.
3. *Prevention of infection and injury*:

The neonate has little resistance to infection and no self protection against injury, so is dependant on health team members and parents for safe care.
A. The baby's environment should be kept as clean as possible and all clothing, linens and equipment.

B. **Careful hand washing** parents is necessary by all care givers including parents before handling the baby.

C. If the mother did not receive vitamin K before delivery, the new born infant should receive 1.0 mg of water soluble vitamin K; this is given I.M for the prevention of hemorrhage.
D. Prophylactic treatment to prevent newborn gonococci ophthalmic is required by introducing silver nitrate 1%, 1-2 drops in each eye or by tetra cycline ointment 1%.

E. Infection of the umbilical stump should be prevented by apply alcohol to it to promote drying and inhibit the growth of bacterial organisms. The diaper should be placed below the cord to allow dryness and prevent the irritation from the diaper surface. Any redness area around the umbilicus or foul discharge should be reported immediately.
Observation:

1. Meconium and urine passage:
   o The neonate should pass urine within 24 hours and meconium within 48 hours.
   o The neonate may have a stool with every feeding. Particularly, when breast-fed.
   o assess for deviation in stool pattern or consistency and for either too few or too many saturated diaper with urine.
2. Umbilical cord observation for hemorrhage and infection.
3. Neonate's behavior.
4. Any abnormalities: Such as, hemorrhage of cord, hypothermia, hyperthermia, bradycardia and any changes in neonate's behavior.
Common Findings

Acrocyanosis

Milia

Lanugo Hair
Enlargement of the breasts

Mongolian spot

Vernix Caseosa

Enlargement of the breasts
Normal born at term 37_42 weight 2.5__4kg
Pink active positive reflexes good APGAR
Normal vitals passing meconium 48 and urine in 24 hours taking the breast
Thanks