MATCHING KEY TERMS

Match the term with the correct definition.

1. _______ asphyxia  a. Slippery fluid that reduces surface tension in lung alveoli
2. _______ bilirubin  b. Tissue designed for newborn heat production
3. _______ brown fat  c. Surroundings in which the infant can maintain a stable temperature with minimal oxygen consumption and a low metabolic rate
4. _______ jaundice  d. Fine hair covering the fetus
5. _______ lanugo  e. Bilirubin staining of the skin and sclera
6. _______ neutral thermal environment  f. Low blood oxygen and high blood and tissue carbon
7. _______ strabismus  g. “Crossed” eyes
8. _______ surfactant  h. Unusable component of hemolyzed erythrocytes

Listed below are conditions that may be found when the newborn is assessed. Match the condition with the part(s) of the body where it would be observed. Note if it is found only in males or only in females. Mark a star by those that are abnormal variations.

9. _______ candidiasis  a. Head
10. _______ pseudomenstruation  b. Mouth
11. _______ jaundice  c. Skin
12. _______ engorgement  d. Genitalia
13. _______ choanal atresia  e. Spine
14. _______ cephalhematoma  f. Ear
15. _______ syndactyly  g. Eye
16. _______ preauricular sinus  h. Nose
17. _______ hydrocele  i. Breast
18. _______ subconjunctival hemorrhage  j. Hands and feet
19. _______ caput succedaneum  k. Hip
20. _______ lanugo
21. _______ Epstein’s pearls
22. ______ hymenal tag
23. ______ polydactyly
24. ______ developmental hip dysplasia
25. ______ spina bifida
26. ______ cataract
27. ______ hypospadias
28. ______ vernix caseosa

**KEY CONCEPTS**

1. Explain how each factor helps the newborn initiate respirations.
   a. Chemical
   
   b. Thermal
   
   c. Mechanical

2. Why is adequate functional residual capacity in the lungs important?

3. Number the following events in the correct order of occurrence.
   a. ______ Increased blood oxygen level
   b. ______ Respirations initiated
   c. ______ Fibrosis of the ductus venosus
   d. ______ Increased pressure in the left side of the heart
   e. ______ Increased blood carbon dioxide level
   f. ______ Surfactant action keeps alveoli open
   g. ______ Foramen ovale closes
   h. ______ Ductus arteriosus constricts

4. List characteristics that predispose newborns to heat loss.

5. Describe each method by which the newborn can lose heat. Which ones can also be methods of heat gain?
6. How does brown fat help the newborn maintain a near-constant temperature? Under what circumstances may newborns have inadequate brown fat, and why?

7. Explain the relationship among oxygenation, body temperature, glucose stores, and bilirubin levels in the newborn.

8. Compare the normal values for fetal and adult erythrocytes, hemoglobin, and hematocrit.

9. How would you explain the prophylactic neonatal vitamin K injection to new parents?

10. Describe each newborn stool as you would explain it to a new parent. When should parents expect the first meconium stool? What differences in stools should parents expect if their infant is breastfed versus formula fed?
   a. Meconium stools
   b. Transitional stools
   c. Mild stools

11. What glucose level on a screening test requires further follow-up?

12. Which infants are at risk for hypoglycemia? Why?

13. Describe how each of the following factors can contribute to high newborn bilirubin levels. Which may be correctable with nursing interventions?
   a. Red blood cell quantity and life span
   b. Liver immaturity
c. Intestinal factors

d. Time of first feeding

e. Birth trauma

f. Fatty acid production

14. When does jaundice become pathologic rather than physiologic?

15. How does each of these problems result in jaundice? What is the usual treatment for each?
   a. Poor intake

   b. True breast milk jaundice


17. What limitations does the newborn have in terms of
   a. handling excess fluid

   b. compensating for inadequate fluid

18. What factors make the newborn vulnerable to infection that might not be a problem for an older infant or child?
19. Each of the following antibodies protects the newborn from what pathogens? Which one(s) are received from the mother?
   a. IgG
   b. IgM
   c. IgA

20. Describe the two periods of reactivity. What are the nursing implications associated with each?

21. Describe the six behavioral states seen in the newborn.

22. What are the two immediate newborn assessments after birth?

23. Complete the following table.

<table>
<thead>
<tr>
<th>Head Variation</th>
<th>Cause(s)</th>
<th>Characteristic Features</th>
<th>Parent Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caput succedaneum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cephalhematoma</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

24. Explain the possible significance of each neonatal assessment.
   a. Two-vessel umbilical cord
   b. Simian line
25. Complete the following table on newborn measurements.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Average for Full-Term Infant</th>
<th>Possible Causes for Deviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head circumference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest circumference</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. List the normal ranges for term neonatal vital signs. Describe the correct assessment technique for each.
   a. Pulse rate

   b. Respiratory rate

   c. Blood pressure

   d. Temperature
      • Rectal

      • Axillary

27. List signs that suggest neonatal respiratory distress.
28. List signs that suggest neonatal hypoglycemia.

29. Describe normal assessments of female and male genitalia.

30. State possible significance of each skin variance. Note if any special care is needed.
   a. Ruddiness

   b. Green-brown discoloration of skin and vernix

   c. Red, blotchy areas with white papules in center

   d. Blue-black marks over the sacral area

   e. Flat, purplish area that does not blanch with pressure

   f. Light-brown spots

31. What facial marks may be present if the infant had a nuchal cord?

CRITICAL THINKING EXERCISES

1. During clinical practice, note steps taken to conserve the newborn’s body heat. Identify which method of loss each is designed to interrupt.

2. Use a medical dictionary or laboratory manual to distinguish between indirect and direct bilirubin tests. How would each help identify possible causes of jaundice in the newborn?
3. What is the protocol for neonatal blood glucose screening at your clinical facility?

4. Find infants whose gestational age assessments were LGA or SGA. Look at the mothers’ charts to determine possible causes. Check the infants’ charts to identify nursing assessments and care that were different (or more in-depth) for these infants during the early hours after birth. Did any problems develop related to their being LGA or SGA?

5. Perform a gestational age assessment on an infant. Ask a classmate to assess the infant separately. Compare your scores and discuss reasons for any differences. Do the same with a staff nurse. Be careful not to stress the infant.

6. Identify different periods of reactivity in infants. Note the response of mothers to the different periods. Determine their understanding of each period of reactivity and teach them as needed.


CASE STUDIES

You are admitting a newborn and performing a gestational age assessment. The infant weighs 6 pounds, 10 ounces; her length is 19 inches; her head circumference is 13 inches. You obtain this information on the assessment: fully flexed position; 0-degree wrist angle; 90- to 100-degree angle on arm recoil; 90-degree popliteal angle; elbow reaches sternum when extending arm across the chest; lower leg at 90-degree angle when flexing thigh onto abdomen. Skin is dry and cracking and no blood vessels are visible through the skin. No lanugo is present. Sole creases cover the entire foot. Areola is 4 mm and ear cartilage is stiff. Clitoris and labia minora are completely covered by the labia majora.

1. Using Figure 22-23, circle the information given in the previous paragraph on the neuromuscular and physical maturity scale. What is your total score for both?

2. Determine the approximate weeks of gestation.

3. Using Figure 22-23, plot the infant’s weight, length, and head circumference. (You will have to convert from English to metric measures.) Determine whether she is SGA, AGA, or LGA.

4. Based on your assessments, does the nurse need additional care for this infant? Why or why not?
REVIEW QUESTIONS

Choose the correct answer.

1. When performing an admission assessment on a term newborn, the nurse notes that the lung sounds are slightly moist. The skin color is pink except for acrocyanosis. Pulse is 156 bpm and respirations are 55 breaths/min and unlabored. The appropriate nursing action is to
   a. notify the pediatrician of the abnormal lung sounds.
   b. continue to observe the infant’s respiratory status.
   c. recheck the high respiratory and pulse rates in 30 minutes.
   d. keep the infant in the newborn nursery until stable.

2. A newborn has a hemoglobin of 24 and a hematocrit of 71%. The nurse should anticipate
   a. temperature instability.
   b. high calcium levels.
   c. delayed breastfeeding.
   d. greater than normal jaundice.

3. Becoming cold can lead to respiratory distress primarily because the infant
   a. needs more oxygen than he or she can supply to generate heat.
   b. breathes more slowly and shallowly when hypothermic.
   c. reopens fetal shunts when the body temperature reaches 36.1° C (97° F).
   d. cannot supply enough glucose to provide fuel for respirations.

4. The primary purpose of surfactant is to
   a. maintain normal blood glucose levels.
   b. keep lung alveoli partly open between breaths.
   c. inhibit excess erythrocyte production.
   d. stimulate passage of the first meconium stool.

5. The foramen ovale closes because the
   a. arterial pressures in the lungs are higher than in the body.
   b. presence of slight hypoxia and acidosis cause constriction.
   c. blood flow through it is redirected through the liver.
   d. pressure in the left atrium is higher than in the right.

6. Brown fat is used to
   a. maintain temperature.
   b. facilitate digestion.
   c. metabolize glucose.
   d. conjugate bilirubin.

7. The infant of a diabetic mother is prone to hypoglycemia because
   a. liver conversion of glycogen to glucose is sluggish.
   b. excess subcutaneous fat reduces blood flow to tissues.
   c. high insulin production rapidly metabolizes glucose.
   d. vulnerability to infections increases metabolic stress.

8. The primary difference between physiologic and pathologic jaundice is the
   a. number of fetal erythrocytes that are broken down.
   b. type of feeding method chosen by the mother.
   c. location of the yellow areas on the newborn’s skin.
   d. time of onset and rate of rise in bilirubin levels.

9. The nurse can help prevent many cases of jaundice in the breastfed infant by
   a. encouraging extra water between each nursing session.
   b. teaching the mother how to encourage regular and adequate breastfeeding.
   c. placing the infants under phototherapy prophylactically.
   d. advising mothers of suitable formulas to use if it occurs.

10. Infection in the newborn often has subtle signs because
    a. body temperature rises slowly in response to pathogens.
    b. passive antibodies from the mother fight infection early.
    c. high urine output causes a lower body temperature.
    d. leukocyte response and inflammatory signs are immature.
11. A hungry infant is crying vigorously. The best initial intervention is to
   a. immediately give formula until the infant is satisfied.
   b. place the infant in a quiet, dark area, wrapped tightly.
   c. console the infant before the mother tries to feed it.
   d. encourage the parents to engage their infant in eye-to-eye contact.

12. A 9-pound, 11-ounce infant was born vaginally. The labor nurse reports that there was shoulder dystocia at birth but that Apgar scores were 8 at 1 minute and 9 at 5 minutes. The nurse should do a focused assessment for
   a. hip dysplasia.
   b. head molding.
   c. clavicle fracture.
   d. abnormal cord vessels.

13. The nurse notes that the infant’s feet are turned inward. The appropriate nursing action is to
   a. apply a splint to the feet and lower legs.
   b. notify the pediatrician or nurse practitioner.
   c. explain to the parents that this is typical for intrauterine position.
   d. determine whether the feet can be moved to a normal, straight position.

14. While performing an admission assessment on a term newborn, the nurse notes poor muscle tone and slight jitteriness. The appropriate nursing action is to
   a. assess the infant’s blood glucose level.
   b. stop the assessment and wrap the infant tightly in blankets.
   c. check the mother’s chart for narcotics given late in labor.
   d. give supplemental oxygen by face mask.

15. While making a home visit to a mother and newborn on the second day after birth, the nurse notes that the infant’s skin color is yellowish to the midsternal level. The most important action is to
   a. teach the mother to breastfeed the infant at least every 2 to 3 hours.
   b. explain that jaundice after birth is common and will resolve without treatment.
   c. ask the mother whether she has been feeding the infant supplemental formula.
   d. notify the pediatrician or nurse practitioner of the early, intense jaundice.

16. Choose the nursing observation that is most important if the nurse notes a two-vessel umbilical cord.
   a. Urine output
   b. Onset of jaundice
   c. Respiratory rate
   d. Heart rhythm

17. An infant’s gestational age assessment reveals that her weight is SGA. This means that
   a. she was born before 37 completed weeks of gestation.
   b. her weight falls between the 10th and 90th percentile.
   c. she has a low birth weight in relation to her length.
   d. her weight is lower than expected for her gestation.

18. When weighing an infant, the nurse places a covering on the scale tray to
   a. avoid causing multiple startle (Moro) reflexes when weighing.
   b. ensure that conductive heat loss from the infant is minimal.
   c. compensate for negative weight balance to ensure correct weight.
   d. avoid contaminating the nurse’s hands with blood or other body substances.

19. Which newborn reflex can help the new mother learn to breastfeed?
   a. Tonic neck
   b. Rooting
   c. Palmar grasp
   d. Moro

20. The nurse notes slight resistance when first inserting a rectal thermometer to take a newborn’s first temperature. The best nursing action is to
   a. notify the infant’s pediatrician.
   b. rotate the thermometer to the left while inserting.
   c. listen for the presence of bowel sounds.
   d. check for rectal patency using the fifth digit.

21. The best location for an infant’s glucose determination is the
   a. great toe of either foot.
   b. nondominant heel.
   c. midline of the heel.
   d. lateral surface of the heel.