

## Unit 11 Objectives: Neonatal and Obstetrical Transfusion Practice

1. Define "neonatal period".
2. Define "iatrogenic blood loss".
3. Describe how hospital blood banks provide red blood cell transfusions to minimize donor exposure to infants.
4. Explain the reason for allowing the use of a unit of blood for 28 days for infants.
5. State the reason for poor tissue oxygenation in the infant after birth.
6. State the life span of a fetal red cell.
7. State the type of hemoglobin found in a fetal red cell.
8. Describe the "physiologic anemia of infancy".
9. Describe the types of infants requiring transfusion.
10. Describe the physiological problems caused by: hypovolemia, bone marrow response, hypothermia and immature immune system in neonates.
11. Name the major immunoglobulin class responsible for Hemolytic Disease of the Newborn (HDN).
12. Describe the disease graft versus host disease, including the cause.
13. State the procedure performed on donor blood for intrauterine transfusions to prevent the occurrence of graft versus host disease.
14. List 3 physiologic problems which may occur in infants with Respiratory Distress Syndrome (RDS) or sepsis which may increase oxygen affinity of hemoglobin.
15. List 4 organ systems which may be dysfunctional due to an infant acquiring a CMV infection.
16. Briefly describe the cause (etiology).
17. Describe the consequences of the coating of fetal red blood cells with maternal antibody.
18. Describe the metabolism of bilirubin pre- and post-delivery and the problems it causes.
19. Name the liver enzyme which infants are deficient in which is responsible for conjugating bilirubin.
20. State the critical bilirubin level in neonates which may necessitate an exchange transfusion.
21. Describe in detail the three classification of HDN, listing them in severity of order and the causative antibody.
22. Describe the mechanism involved in immunization of the mother during pregnancy.
23. List 7 ways (other than delivery) that a mother may become sensitized to rbc antigens during pregnancy.
24. Explain the importance of transfusing D negative women with D negative blood, granulocytes or platelets.
25. Explain why the first baby is usually not affected or is mildly affected if the current pregnancy is the immunizing event in HDN other than ABO.
26. List the tests commonly performed in prenatal testing and the purpose of performing each one.
27. Describe the general procedure and value amniocentesis in the treatment of HDN.
28. State the purpose for using 2ME or DTT and the expected outcome if the antibody is immune in nature.
29. State the wavelength utilized to analyze amniotic fluid for the presence of bile pigment.
30. Describe how a physician will utilize the results of amniotic fluid analysis to decide when to deliver an infant severely affected by HDN and the risks involved.
31. Describe intrauterine transfusion procedure including: risks, product of choice, ABO/D type of blood used, reason for irradiation, compatibility testing and baby's type at birth.
32. Define the term "cordocentesis".
33. Describe how an intrauterine **exchange** transfusion is performed.
34. Describe how a cord blood sample should be obtained, labeled and the purpose of saving it for 7

days after delivery.

35. List the tests performed postpartum on the mother and cord blood samples.
36. State the problems caused by Wharton's jelly and how this problem is resolved to ensure accurate testing.
37. Lists the tests performed and expected outcomes in laboratory diagnosis of ABO HDN.
38. State the treatment of choice for ABO HDN and how this treatment works.
39. List the tests performed and expected outcomes in for the laboratory diagnosis of HDN due to "other" antibodies.
40. Describe the treatment for HDN due to "other" blood group antibodies.
41. Briefly describe the discovery of HDN due to D incompatibility.
42. Briefly describe the disease process "erythroblastosis fetalis".
43. Describe the three different types of responses which D neg individuals may have when exposed to the D pos red blood cells.
44. Explain why D neg mother's who are ABO incompatible with their babies are somewhat protected from immunization to the D antigen.
45. Describe how titers are used to determine diagnose the severity of HDN and what additional procedure is done to monitor the fetus.
46. List 6 tests and the results which are indicative of HDN postpartum due to anti-D.
47. List three goals of exchange transfusion.
48. Describe compatibility testing done for exchange transfusion.
49. List 4 requirements for blood selected for exchange transfusion.
50. Describe the specimen(s) used for crossmatching if the maternal blood sample is not immediately available and the reasons for utilizing these samples.
51. Given serological information on baby and mother: interpret the results, state the appropriate ABO/D type as well as other serological testing which must be done to select a donor for exchange transfusion.
52. Define Rh Immune Globulin (RhIG), including the standard dose and amount of bleed covered.
53. Briefly explain why an ante-partum dose of RhIG is given to D neg women at 28 weeks.
54. List three categories of women who are not RhIG candidates.
55. Explain why some D neg women might have detectable circulating anti-D in their postpartum sample and how it is determined whether or not the antibody present is passively acquired.
56. Explain why a blood sample must be drawn prior to the administration of antenatal RhIG.
57. State the time period in which postnatal RhIG is given.
58. List 7 instances, other than delivery, in which administration of RhIG may be inadvertently omitted.
59. State the principle of the rosette (fetal bleed screen) test and why it is performed.
60. Describe the principle of the Kleihauer-Betke Acid Elution test.
61. Given the results for an RhIg work up state whether or not the mother is an RhIg candidate and defend your answer.
62. Given the results of a Kleihauer-Betke test calculate the number of vials of RhIg needed.
63. Describe the procedure which should be followed when more than 5 vials of RhIG must be given.