

IAP Neonatology Chapter Fellowship Examination

February 2016, Theory Paper 2

(Marks: 100)

- Attempt answers for each question on a separate page.
- All questions are compulsory.
- All questions carry equal marks.

Q1. A male baby was delivered by LSCS at 39 weeks of gestation for fetal bradycardia. After resuscitation the baby was shifted to NICU (Apgars of 3, 5 and 7 at 1, 5 and 10 minutes). The infant was stupor and had multifocal clonic seizures at 2 hours of life on mechanical ventilation.

- a) How do you clinically monitor for brain injury? (2)
- b) What neuropathological types of brain injury such an infant may have with its sequel? (2)
- c) What are principles of cooling therapy in such an infant. (10)
- d) How do you prognosticate at the time of discharge and at 4 months of age (3+3)

Q2. 28 weeks, Baby A, weighing 1100 gm with respiratory distress is being managed with CPAP and supportive care. Baby is hemodynamically stable at 36 hours.

- a) How do you implement minimal enteral nutrition in such an infant (3)
- b) How do you advance enteral feeds? Compare it with an IUGR infant (4)
- c) What is your target calorie and protein intake in this baby? Lay down nutritional strategies to optimize growth of such an infant during early neonatal period? (6)
- d) What are the indications for starting HMF? What are the drawbacks of HMF available in the market? (4)
- e) What are your strategies to ensure lactation in such a mother? (3)

Q3. A 1.4 kg with respiratory distress is in urgent need for transport to a level III facility.

- a) How do you decide about the transport options? (4)
- b) How do you stabilize the baby pre-intra transfer? (4)
- c) What possible problems do you anticipate during transport? (4)
- d) How do you stabilize this baby during transport if it develops cyanosis? (4)
- e) Make a checklist of equipments that you need to in your tool box ? (4)

- Q4.** A day 20 newborn with poor weight gain with fever of 2 days is diagnosed to have plenty of pus cells in the urine. The culture report is awaited.
- How do you manage such an infant pending culture report? (5)
 - How do you follow up this infant with E coli isolated in the urine ? (5)
 - MCU study reveals grade III vesicouretric reflux at 6 weeks. What is your plan? (5)
 - How do you differentiate a contaminant from a true infection on a culture report? (5)
- Q5.** A 28w, 1.3 kg is oxygen dependent at d26. He was treated for RDS, sepsis, NEC and had 2 blood transfusions so far. He is on 160 cc/kg of enteral feeds.
- What focused physical exam shall give clue to oxygen dependency? (5)
 - XRC shows bilateral diffuse non homogenous opacities. What are your management options (10)
 - What are best potential practices to prevent such an incident in the next patient? (5)

PAPER 1: Multiple choice questions (MCQ) Section: (Marks: 30)

- Attempt answers on a separate page.
- Choose only one correct answer.
- All questions are compulsory.
- All questions carry equal marks.

- 1. An infant is diagnosed with a given disorder below. Which of these poses the greatest recurrence risk for this patient's future siblings?**
 - Hirschsprung disease
 - Cystic fibrosis
 - Ventricular septal defect
 - Trisomy 21
 - Trisomy 13
- 2. A term infant with microcephaly, jaundice, and thrombocytopenia is thought to have congenital CMV infection. Your attending physician notes though that 1.5% of all newborns may have asymptomatic congenital cytomegalovirus infection. Which of the following is the most commonly reported sequelae of such infections?**
 - Chorioretinitis
 - Sensorineural hearing loss
 - Thrombocytopenia
 - Poor growth

- e) Liver failure
- 3. The pediatric surgeon is requesting an echocardiogram on a hospitalized newborn with a congenital defect of the gastrointestinal tract. Which of the following defects has the highest incidence of associated cardiac defects?**
- a) Omphalocele
 - b) Congenital volvulus
 - c) Hirschsprung disease
 - d) Gastroschisis
 - e) Pyloric stenosis
- 4. Which of the following symptoms in a newborn infant would prompt you to test for cystic fibrosis?**
- a) Pneumonia
 - b) Intrauterine growth retardation
 - c) Meconium ileus
 - d) Wheezing
 - e) Hypochloremic alkalosis
- 5. Of the following, which physical finding is most indicative of a full-term infant?**
- a) Veins and tributaries are seen over the abdomen
 - b) Long lanugo is present on the back
 - c) Palpable breast tissue of 1 cm
 - d) Pitting edema over the tibia
 - e) Soft ear pinnae, easily folded
- 6. The blood bank has received an order for an intrauterine transfusion. A fetus with which of the following would most likely require transfusion prior to birth?**
- a) Erythroblastosis fetalis
 - b) Sickle cell anemia
 - c) Spherocytosis
 - d) B Thalassemia
 - e) Congenital dyserythropoietic anemia
- 7. You are the attending physician for a newborn infant with hemolytic jaundice. The mother did not receive prenatal care with this pregnancy or her prior pregnancy. The direct Coombs test is positive. The mother's blood type is A- and the baby's blood type is O+. Her first baby did not have hemolytic jaundice. What is the most likely cause of the hemolytic jaundice?**
- a) ABO incompatibility
 - b) Minor blood group incompatibility
 - c) Rh incompatibility
 - d) Immune mediated hemolytic anemia
 - e) Hereditary spherocytosis
- 8. Which of the following best describes the major route for excretion of bilirubin in the fetus in utero?**
- a) Via the kidney
 - b) Transplacental passage
 - c) Degradation to biliverdin

- d) Reincorporation into hemoglobin
- e) Hepatic secretion and storage in the intestinal lumen

9. A premature infant is now 4 hours old and you suspect respiratory distress syndrome. Which of the following is the least likely first clinical presentation of respiratory distress syndrome?

- a) Tachypnea
- b) Delayed capillary refill
- c) Cyanosis
- d) Wheezing
- e) Pallor

10. A term infant is now 10 hours of age and has a seizure. Which of the following diagnoses is more common among term rather than premature infants?

- a) Intraventricular hemorrhage
- b) Hemorrhagic disease of the newborn
- c) Sepsis
- d) Subdural hemorrhage
- e) Congenital infection

11. A term neonate begins vomiting during the first few days of life, and develops a distended abdomen. The family history is positive for cystic fibrosis. Which of the following conditions, if found, would most likely be related to the family history?

- a) annular pancreas
- b) Duodenal atresia
- c) Hypertrophic pyloric stenosis
- d) Meconium ileus
- e) Volvulus

12. Which of the following clinical signs most likely represent those seen in a newborn with tension pneumothorax?

- a) Cyanosis, apnea, and tachycardia
- b) Apnea, hypertension, and bradycardia
- c) Tachypnea, cyanosis, and bradycardia
- d) Wheezing, tachycardia, and hypertension
- e) Wheezing, hypotension, and apnea

13. Which of the following is the most common complication of intrauterine transfusion?

- a) A transfusion reaction (mismatch)
- b) Graft-versus-host reaction
- c) Premature onset of labor
- d) Acquired immunodeficiency syndrome (AIDS)
- e) Renal failure

14. Which of the following is most predictive for the development of kernicterus?

- a) Hyperbilirubinemia within the first 24 hours of life
- b) Peak conjugated bilirubin level
- c) Peak unconjugated bilirubin level
- d) Duration of hyperbilirubinemia
- e) Hemoglobin level immediately after birth

15. Which of the following is the expected weight flux for an infant in the first week of life?

- a) Gain approximately 30 g/day
- b) Gain approximately 60 g/day
- c) Neither gain nor lose weight
- d) Lose approximately 5%–10% of its birth weight
- e) Lose approximately 15% of its birth weight

16. Of the following, which correlates best with subsequent neurologic abnormalities?

- a) Fetal bradycardia
- b) ROP stage III
- c) Sibling with developmental delay
- d) A low 5-minute Apgar score
- e) Seizures in the first 36 hours of life

17. A baby with cyanosis is suspected to have a ductus dependant right sided obstructive heart disease. Baby is started on prostacyclin infusion. How much time is usually required to see a response (improvement in saturation)?

- a) 15-30 minutes
- b) 4-6 hours
- c) 12- 24 hours
- d) > 24 hours
- e) 6- 12 hours

18. Term born baby has perinatal asphyxia. Urine output is 0.9 ml / kg / hour. His sodium at 24 hours is 128 meq / L. What is the preferred action?

- a) Restrict fluids
- b) Start maintenance sodium in fluid
- c) Calculate the sodium deficit and add sodium accordingly
- d) NS Bolus
- e) All of the above

19. In G6PD deficiency, there is hyperbilirubinemia on the basis of:

- a) Hemolysis
- b) Decreased conjugation
- c) Increased conjugation
- d) A & B

20. Which of the following factors should be strongly considered in determining whether an exchange transfusion is indicated in a term neonate with an indirect bilirubin of 21 mg%

- a) Postnatal age
- b) Whether the cause is hemolytic or non-hemolytic.
- c) The presence of other clinical factors such as intraventricular hemorrhage or meningitis.
- d) Gestational age
- e) All of the above.

- 21. 12 day old infant, exclusively fed cow's milk formula, presents to the ER appearing greyish/cyanotic. With 5L/minute oxygen by mask, his radial artery paO₂ is 236 torr. His most likely diagnosis is:**
- a) Tetralogy of Fallot
 - b) Persistent Pulmonary Hypertension
 - c) Methemoglobinemia
 - d) Transposition of the Great Vessels
 - e) Co-arcuation of aorta
- 22. 2 day old term infant is to be discharged from the nursery. He becomes acutely pale, slightly cyanotic, with weak femoral and brachial pulses. The congenital heart disease most likely to present in this manner is:**
- a) Tetralogy of Fallot
 - b) Hypoplastic Left Heart Syndrome
 - c) Tricuspid Atresia
 - d) Total Anomalous Pulmonary Venous Return
 - e) Ebsteins anomaly
- 23. If baby is born apnoeic to a mother who received pethidine 2 hours prior to delivery – appropriate action is**
- a) PPV and intra tracheal naloxone
 - b) PPV and IV naloxone only if necessary
 - c) PPV and caffeine
 - d) ET Naloxone and CPAP
 - e) PPV and IM naloxone
- 24. Baby was screened for hearing by BERA test as part of NICU follow up. What is the threshold at which baby is considered having hearing impairment?**
- a) 35 Db
 - b) 50 db
 - c) 65 db
 - d) 80 db
- 25. The PaO₂ in descending aorta of a fetus is**
- a) 15-20 mm Hg
 - b) 20-40 mm Hg
 - c) 40 – 45 mm Hg
 - d) 50 -80 mm Hg
 - e) > 80 mm Hg
- 26. Blood banks in India must screen for following infections except**
- a) Hepatitis C
 - b) Syphilis
 - c) HIV
 - d) CMV
 - e) Malaria
- 27. Sildenafil – mechanism of action is through**
- a) Inhibition of PDE5

- b) Stimulation of PDE5
- c) Inhibition of PDE3
- d) Stimulation of PDE3

28. Alcohol based hand rub is the preferred method of asepsis in following clinical situations except

- a) If moving from a contaminated body site to another body site during care of the same patient
- b) After contact with inanimate surfaces and objects (including medical equipment) in the immediate vicinity of the patient
- c) after removing sterile or non-sterile gloves
- d) Potential spore-forming pathogens is strongly suspected or proven

29. True regarding nutrition supplements for new born babies are -except

- a) **A supplement of 400 IU per day of vitamin D is recommended for all breastfed infants**
- b) Preterm babies need 120 -140 mg calcium / kg / day
- c) Protein needs for preterm babies 1.5 – 2 gm / kg / day
- d) Energy – 100 – 135 kcal / kg / day

30. WHO recommendations on antenatal steroids

- a) Either intramuscular (IM) dexamethasone or IM betamethasone (total 24 mg in divided doses) is recommended as the antenatal corticosteroid of choice when preterm birth is imminent
- b) A single repeat course of antenatal corticosteroid is recommended if preterm birth does not occur within 7 days after the initial dose, and a subsequent clinical assessment demonstrates that there is a high risk of preterm birth in the next 7 day
- c) Antenatal corticosteroid therapy is recommended for women at risk of preterm birth from 24 weeks to 34 weeks of gestations
- d) a, b, c
- e) a and c

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