IAP Neonatology Chapter

IAP Neonatology Fellowship Exam 7th Feb 2020

Theory Paper 1

Time – 3 hours **Total Marks – 100 (80+20)**

- **Attempt all questions.**
- **Write in legible handwriting.**
- **Write answers to the point.**
- **Quote evidence/ studies wherever required.**

Question No. 1: (20 Marks)

Intraventricular hemorrhage is important cause of mortality and morbidity in very premature babies.

a) Enumerate the factors which increasethe vulnerability of preterm infants to intraventricular hemorrhage? (5)

b) Name two staging systems for grading IVH. Tabulate one of staging system. (2+3)

c) Discuss antenatal and postnatal strategies to prevent IVH in preterm babies. (5+5)

Question No. 2: Write short notes on: (20 marks)

a) Delayed cord clamping in preterm neonates (5)

b) Role of antenatal steroids after 34 weeks of gestation (5)

c) Role of Postnatal Steroids in neonates (5)

d) Pulse oximeter screening for congenital heart disease (5)

Question No. 3: Write short notes and illustrate the following using flow chart : (20 marks)

a) Pathophysiology of hypoxic-ischemic encephalopathy and mode of action of various neuroprotective strategies (5)

b) Surfactant metabolism and its derangement in various pathological conditions (5)

c) Draw a flow chart describing the diagnostic approach to a neonate with abnormal thyroid screen (5)

d) Approach to a neonate with ambiguous genitalia (5)

Question No. 4: Write Short Notes on: (20 marks)

a) Oxygenation Index (5)

b) Gastroesophageal Reflux in Neonates (5)

c) Rashtriya Bal Swasthya Karyakram (RBSK) (5)

d) Community based Kangaroo Mother Care (5)

MCQ's

Attempt all questions. Total Marks =20 (1X20)

1. In contrast to "classic" bronchopulmonary dysplasia (BPD), initially described in 1967, the "new" BPD in the more contemporary clinical setting is characterized by different histopathologic findings on examination of the lung tissue. Out of the following, the most striking abnormality in the lungs of infants who have new BPD is:

   a. Decrease in alveolar septation
   b. Diffuse leukocytic infiltration
   c. Hypertrophy of airway smooth muscle
   d. Lung parenchymal fibrosis

2. Which formula is used to calculate the "number needed to treat"?

   a. 1/Absolute risk reduction
   b. Absolute risk reduction/Relative risk reduction
   c. Relative risk reduction/Absolute risk reduction
   d. 1/Relative risk reduction

3. What is amount of volume for partial exchange transfusion in neonate at 2.5 kg birth weight withhematocrit 75% to bring down hematocrit to 50%.

   a. 83 ml
   b. 76 ml
   c. 67 ml
   d. 55 ml

4. What is most commonly used schedule for therapeutic hypothermia

   a. Core temp 32.5 C for 48 h
   b. Core temp 33.5 for 48 h
   c. Core temp 32.5 C for 72 h
   d. Core temp 33.5 for 72 h

5. Fetal hydrocephalus is defined as lateral ventricular atrial diameter greater than?

   a. 7 mm
   b. 10 mm
   c. 15 mm
   d. 20 mm

6. Which temperature and duration combination is/are used for sterilization of donor human milk?

   a. 63 C for 30 minutes followed by rapid cooling
   b. 72 C for 5 minutes followed by rapid cooling
   c. 100 C for 2 minutes followed by rapid cooling
   d. Any of above

7. How much minimal daily protein intake is essential to prevent negative nitrogen balance in an extremely preterm baby?

   a. 0.5 g/kg
   b. 1.0 g/kg
   c. 1.5 g/kg
   d. 2.0 g/kg

8. Which of the following is not a method to analyze underlying cause of poor quality of care?

   a. Pareto chart
   b. Run chart
   c. Fish-bone
   d. Process flow

9. In hypoxic ischemic encephalopathy changes in brain can be detected earliest using which of the following type of MRI sequence?

   a. T1 weighted imaging
   b. T2 weighted imaging
   c. Diffusion weighted imaging
   d. MR angiography

10. "X" is a pregnant mother. Her antenatal evaluation revealed fetal tachycardia. A diagnosis of SVT was made. What is the drug of choice for fetal SVT?

    a. Propranolol
    b. Digoxin
    c. Magnesium sulphate
    d. Amiodarone

11. Which of the following is most important mechanism of action of phototherapy?

    a. Photoisomerization
    b. Structural isomerization

c. Photo oxidation
d. All are equally important

12. A neonate presents at 18 hrs of life with history of irritability, poor feeding, fever, sneezing, increased muscle tone, nasal stuffiness, sweating,and tachypnea. The mostprobable diagnosis in this neonate would be -

a. Neonatal thyrotoxicosis
b. Neonatal abstinence syndrome
c. Neonatal encephalopathy secondary to Peripartum magnesium usage in mother
d. Congenital pneumonia

13. The following statement is true regarding the development of heart-

a. Cardiac activity starts by 25 days of life
b. Cardiac looping occurs by 8 weeks of life
c. In the fetal circulation lower half of the body receives higher oxygen content blood than the upper half
d. DiGeorge syndrome is associated with defects in cardiac looping

14. Which of the following statement is false?

a. Normal term neonate MRI brain shows hypointense white matter when compared to grey matter in T1 and hyperintense to gray matter on T 2 weighted imaging
b. Most common symptomatic intracranial vascular malformation in the newborn is vein of Galen malformation
c. Most common site of parenchymal hemorrhage in a term neonate is temporal lobe
d. Grade 1 GMH is a bright echogenic area in the subependymal area typically located posterior to caudothalamic groove.

15. All the following statements are true regarding Alprostadil except

a. Time taken for therapeutic effect of Alprostadil is 15 to 30 mins after its administration
b. Initial dose of Alprostadil is 0.05 to 0.10 mcg/kg/min
c. Hypotension secondary to Alprostadil responds well to fluid bolus
d. TGA with intact septum with restrictive foramen ovale improves with PGE1 therapy

16. All the following statements are true regarding thermoregulation except –

a. Premature neonates do not induce effective thermogenesis in response to cold stress
b. Preterm babies have abundant brown fat which helps in non-shivering thermogenesis
c. Neonatal cold reception and warm reception sites are located in skin and hypothalamus respectively
d. Vasoconstriction remains the newborns first line of thermally insulating defence and is well developed even in a premature neonate

17. The following are true regarding sodium homeostasis except –

a. Most common cause of hyponatremia in a sick neonate is total body sodium deficit
b. Hyponatremia of less than 120 meq/L should be treated with hypertonic saline irrespective of the cause of hyponatremia
c. Idiogenic osmoles aid in maintaining normal brain cell volume during periods of hyperosmolar stress
d. In extremely preterm neonates , hypernatremia occurs most commonly due to trans epidermal water losses within 24-48 hrs

18. An infant presents with elfin facies, hypercalcemia, hallus valgus and aortic stenosis . Which of the following syndrome is associated with these features?

a. DiGeorge syndrome
b. Smith lemliopitz syndrome
c. Williams syndrome
d. CHARGE syndrome

19. A newborn presents with abdominal distension with bilious vomiting .Which of the following diagnoses is unlikely in this neonate?

a. Malrotation with volvulus
b. Duodenal atresia
c. Hirschsprung disease
d. Ileal atresia

20. Which of the following statement is false?

a. Neonatal AKI is predominantly non oliguric
b. Serum creatinine levels reflect maternal creatinine in the first 48 hrs
c. Serum creatinine reflects the timing and nature of renal injury
d. Most common type of AKI is pre renal AKI