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POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (PAEDIATRICS) EXAMINATION – JANUARY/FEBRUARY 2019

Date :- 22nd January 2019

Time :- 9.00 a.m. – 12.00 noon

PAPER I
(STRUCTURED ESSAY QUESTIONS)

Answer **all five** questions.

Answer each question in a **separate book**.

1.

1.1. List four (04) factors which increase the risk for Tuberculous meningitis in children. (10 marks)

1.2. Describe briefly the rapid diagnostic test - Xpert MTB/RIF (GeneXpert ®) for *Mycobacterium tuberculosis*. (20 marks)

1.3. Outline the treatment of a child with Tuberculous meningitis. (40 marks)

1.4. List four (04) complications occurring during the acute phase of Tuberculous meningitis. (20 marks)

1.5. Mention four (04) strategies adopted to prevent tuberculosis in children in Sri Lanka (10 marks)

2.

2.1.

2.1.1. List five (05) causes of Type IV renal tubular acidosis. (10 marks)

2.1.2. Briefly describe the pathogenesis of Type IV renal tubular acidosis. (15 marks)

2.2.

2.2.1. Briefly discuss, the diagnostic approach to **renal tubular acidosis**. (45 marks)

2.2.2. Outline the management of **renal tubular acidosis**. (30 marks)

Contd.../2-

3.

3.1.

3.1.1. What is the immediate management of a term baby born through meconium stained amniotic fluid? (20 marks)

3.1.2. Briefly outline the pathophysiology of intra uterine meconium aspiration. (20 marks)

3.2.

3.2.1. List three (03) important clinical conditions expected following an intra uterine hypoxic insult in a baby within the first 24 hours of birth. (15 marks)

3.3.2. Outline the post resuscitation management of a term baby with severe perinatal asphyxia following admission to neonatal intensive care unit. (NICU). (45 marks)

4.

4.1. Define non-resolving pneumonia. (15 marks)

4.2. Define recurrent pneumonia. (15 marks)

4.3. Based on the history and clinical examination, how would you identify the possible underlying aetiology of recurrent pneumonia? (35 marks)

4.4. List the investigations, giving reasons, you would perform in a child with recurrent pneumonia in order to arrive at the underlying aetiological diagnosis. (35 marks)

5.

5.1. Define central precocious puberty. (15 marks)

5.2. Explain the pathophysiological basis for the development of clinical manifestations in central precocious puberty. (25 marks)

5.3. List five (05) causes leading to central precocious puberty. (15 marks)

5.4. List five (05) hormonal assays, you would perform in a patient with central precocious puberty. (15 marks)

5.5. Discuss the value of imaging in the management of precocious puberty. (30 marks)

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PAPER II – CASE HISTORIES

Answer all **five (05)** questions.

Answer each question in a separate answer book.

1. A previously well 8-year-old girl from a rural area was admitted with a history of fever for 7 days, vomiting and generalised abdominal pain. She did not have urinary or respiratory symptoms. Two weeks back she had gone on an annual school trip to Kandy. She lives in a partially built house and her parents are farmers.

On examination;

Ill looking and drowsy	
Pulse rate	120 /minute of low volume
Blood pressure	82/33 mm Hg
Respiratory rate	40/minute
Oxygen saturation	92% in room air
Abdomen	Hepatomegaly of 3 cm, just palpable spleen

Further examination revealed a small wound behind the ear and cervical lymphadenopathy of the same side.

- 1.1. Outline your initial management. (30 marks)

Initial investigations revealed:

WBC	15.8 x 10 ⁹ /L	(4-11)
	N – 75%, L – 20%, M – 5%	
Platelets	110 x 10 ⁹ /L	(150-450)
AST	113 IU/L	(<40)
ALT	73 IU/L	(<40)
Bilirubin	0.8 mg/dl	(0.2-1.2)
Albumin	32 g/dl	(35-50)
Creatinine	154 µmol/L	(44-110)
CRP	167mg/dl	(<6)

Contd.../2-

Ultrasound scan Abdomen - diffusely enlarged liver with increased echogenicity of renal parenchyma.

- 1.2. What is the complete diagnosis? (20 marks)
- 1.3. List two (02) investigations you would perform to confirm the diagnosis. (20 marks)
- 1.4. Outline the further management. (30 marks)

Contd...../3-

2. A 15 month old girl is brought by parents with concerns of yellowish discoloration of body since three month of age. She was the second child, born at term, to consanguineous parents with a birth weight of 2.7 Kg. The antenatal and perinatal periods were uneventful. The baby had been assessed by the Medical Officer of Health (MOH) at two months of age before her routine vaccinations and was found to be clinically normal.

The mother is a house wife and had studied up to grade six while the father is a manual labourer and had studied up to grade 10. The elder sibling who is 4 year old is normal. There was no family history of similar illness.

On examination the baby was icteric and not pale. She was also noted to have coarse skin. Her weight was 5.6 kg and weight for length is below 3SD. Abdominal examination revealed hepatomegaly of 3 cm and splenomegaly of 2 cm. The urine was noted to be dark in colour.

Investigations are as follows:

Total bilirubin	185 $\mu\text{mol/L}$	(< 17)
Direct bilirubin	145 $\mu\text{mol/L}$	
AST	379 IU/L	(<40)
ALT	208 IU/L	(<40)
S. protein	66 g/dl	(60-75)
Albumin	37 g/dl	(35-50)
Globulin	29	(25-35)
Alkaline phosphatase	1030 IU/L	(35-104)
GGT	30 IU/L	(9-48)
PT	17 sec	(control 14)
INR	1.5	1.42
Blood urea	12 mmol/L	4-6
Creatinine	44 $\mu\text{mol/dl}$	45-80
US Scan abdomen	Enlarged liver with coarse echo pattern. Gall bladder is visualized	
Hep. B surface antigen	Negative	
Hep. C antibodies	Negative	
TORCH screening	Negative	
Alpha feto protein	9,903 IU/ml	(<20)
Serum Tyrosine	Normal	
Serum Citruline	Normal	
Serum Amino acid chromatography	Normal	
Serum ceruloplasmin	Normal	
Sweat test	Negative	

Contd..../4-

- 2.1. Mention the most likely diagnosis giving reasons. (40 marks)
- 2.2. How would you confirm the diagnosis? (10 marks)
- 2.3. Outline the management. (50 marks)

Contd...../5-

3. A previously healthy 12 year old girl presented to the OPD with fever, loose stools and abdominal pain of two days. On examination she was well perfused with no signs of dehydration. Abdominal examination was unremarkable apart from mild circumumbilical tenderness. She was commenced on oral cefuroxime, probiotics and zinc.

She was seen by a Paediatrician in the private sector two days later as she continued to have loose stools and abdominal pain although the intensity of fever had reduced. She had been tolerating oral fluids and had a normal urine output over the preceding 24 hours.

On examination she was noted to have a temperature of 100°F with a pulse rate of 110 /minute. There was mild tenderness over the abdomen.

Investigations done at this stage revealed;

CRP	50 mg/dl	(<6)
WBC	12.5 x 10 ⁹ /L	(4 – 11)
	N-80 %, L-20%	
Hb	12.5 g/dl	(12 – 14)
Stool full report		
Pus cells	10-12 /hpf	
RBC	4-5 /hpf	

Upon review of the investigations, oral cefuroxime was discontinued. She was commenced on oral ciprofloxacin 250 mg twice a day and advised to continue on paracetamol, probiotics and oral zinc. The parents were advised to bring her back for a review in 48 hours if there was no improvement.

She returned two days later and the repeat investigations revealed;

CRP	197 mg/dl	(<6)
WBC	29.5 x 10 ⁹ /L	(4 – 11)
	N-86%, L-14%	

On examination at this point, she was febrile with a pulse rate of 130/minute and blood pressure 110/80 mmHg. Abdominal examination revealed a vague mass in right iliac region.

- 3.1. Mention the most appropriate investigation you would perform at this stage. (20 marks)
- 3.2. Give the complete diagnosis. (20 marks)
- 3.3. List five (05) important steps in the management of this girl. (50 marks)
- 3.4. Mention one (01) complication that could arise if this condition is not optimally managed. (10 marks)

4. A 4 months old baby boy was admitted to the paediatric ward with cough, cold and difficulty in breathing of 2 days duration. On examination, he was ill looking and febrile. His respiratory rate was 60/minute with subcostal and intercostal recessions. There were bilateral crepitations and rhonchi. The other systems examination was unremarkable.

He was born by normal vaginal delivery at term, through meconium stained liquor. His birth weight was 2.2 kg. He developed respiratory distress soon after birth needing mechanical ventilation for seven days. Subsequently he needed further respiratory support with intermittent CPAP, high flow nasal oxygen and nasal prong oxygen for 3 months. During this period he required treatment with intra venous antibiotics for recurrent respiratory infections. He also needed nebulization with 3% saline, ipratropium bromide, budesonide, and amikacin, along with chest physiotherapy.

He was finally discharged home at three months of age. At the time of discharge the baby was exclusively breast fed and the discharge weight was 3.1 kg.

- 4.1. What is the most likely complete diagnosis? (20 marks)
- 4.2. Mention the investigation you would perform to identify the aetiology for the current presentation. (10 marks)
- 4.3. List five (05) differential diagnoses for his underlying condition. (25 marks)
- 4.4. Name five (05) specific investigations you would perform to identify the conditions mentioned in 4.3. (15 marks)
- 4.5. Briefly **discuss** the measures you would adopt to protect his lungs from further injury in the future. (30 marks)

5. You are the Senior Registrar in a neonatal intensive care unit. You are called upon to assess a preterm baby who has just been admitted to the unit. The baby was born vaginally at the OPD of the same hospital 30 minutes ago at 27 weeks of gestation with a birth weight of 920 g. The mother is a 29 year old teacher and has 2 healthy children. The baby has been intubated by the on call PHO at the OPD and is currently being ventilated.

Your observations are as follows:

Baby has central cyanosis while being ventilated with minimal chest expansion.

Skin temperature	35.9 ⁰ C
SpO ₂ in right upper limb	78%
Heart rate	156/minute
Mean arterial pressure (MAP)	30 mmHg
Capillary refill time	4 seconds

Ventilator settings are given below:

Baby is on SIMV (PIP/PEEP)	16/6
Rate	40/minute
FiO ₂	100%
Inspiratory time	0.2 seconds

Incubator temperature set at 30⁰C and humidity set at 75%

- 5.1. Mention the immediate steps that you would undertake to stabilize this baby. (20 marks)
- 5.2. List the steps that you would take to optimize the respiratory support for this baby? (25 marks)
- 5.3. Outline the further management of this baby. (35 marks)

After 1 hour, the capillary blood gas (CBG) is as follows:

pH	7.01
CO ₂	92 mmHg
BE	4.2
HCO ₃ ⁻	17.2 mmol/L

Pulse oxymetry reading was 90 % at the time of this CBG.

- 5.4. What steps would you undertake to improve this situation? (20 marks)