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POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (PAEDIATRICS) EXAMINATION – JULY/AUGUST 2019

Date :- 23rd July 2019 **Time** :- 9.00 a.m – 12.00 noon

PAPER 1
(STRUCTURED ESSAY QUESTIONS)

Answer **all five** questions.
Answer each question in a **separate book.**

1.

1.1 List the four (4) primary vital signs used in clinical practice.
(15 marks)

1.2 Mention 3 benefits of assessment of vital signs in paediatric practice.
(15 marks)

1.3 State the factors that affect the normal values of vital signs.
(20 marks)

1.4 Monitoring and timely interventions play a vital role in preventing iatrogenic complications in critically ill children.
Given below are 2 iatrogenic complications.

A. Worsening of heart failure, while on the ventilator in a child with a ventricular septal defect.

B. Development of cerebral oedema while treating a child with diabetic ketoacidosis.

1.4.1 Explain briefly the reasons for development of each of the above complications. (20 marks)

1.4.2 Describe briefly the strategies you would adopt to minimize the development of each of the above complications.
(30 marks)

Contd..../2-

2.

2.1 Define

a. Fetal Growth Retardation (Intra-uterine Growth Retardation)
b. Small for Gestational Age

(15 marks)

2.2 Mention different categories of

a. Pre-maturity
b. Low birth weight (30 marks)

2.3 Outline the management of a **Term Very Low Birth Weight** baby.

(30 marks)

2.4 Mention the problems that could occur in a Term - Small for Gestational Age baby, later in life. (25 marks)

3.

3.1 Briefly outline the pathophysiology of **classic** Congenital Adrenal Hyperplasia. (30 marks)

3.2 Mention ten (10) clinical features of the above condition.

(10 marks)

3.3 Outline the management of **classic** Congenital Adrenal Hyperplasia.

(40 marks)

3.4 Discuss briefly the problems encountered during the long-term management of this condition.

(20 marks)

Contd..../3-

4.

4.1 Define

4.1.1 development assessment of a child

4.1.2 global developmental delay (15 marks)

4.2 List five (5) benefits of development assessment. (15 marks)

4.3 Mention four (4) correctable causes of slow development. (20marks)

4.4 Mention ten (10) indicators (red flags) that suggest development is seriously disordered and need detail evaluation. (20 marks)

4.5 In Sri Lanka, describe in brief the mechanisms available to identify and services available for follow up children with development delay. (30 marks)

5.

5.1 Describe how you would interpret a sample of red coloured urine, using both dipstick method and microscopy. (20 marks)

5.2 List five (5) clinical presentations of IgA nephropathy in children. (20 marks)

5.3 Mention one (1) histological feature and one (1) immunofluorescence stain finding seen in IgA nephropathy. (10 marks)

5.4 Indicate four (4) poor prognostic features of IgA nephropathy. (20 marks)

5.5 Briefly discuss the management of a child with IgA nephropathy. (30 marks)

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MD (PAEDIATRICS) EXAMINATION – JULY, 2019

Date: 24th July 2019 **Time:** 9.00 a.m. – 12.00 noon

PAPER II – CASE HISTORIES

Answer all **five (05)** questions.
Answer each question in a separate book.

1. A previously well eighteen month old boy is admitted to a tertiary care paediatric unit with a history of progressive drowsiness of two days. His parents mentioned that the child had tripped and fallen on the floor while running inside the house two days ago.
   Parents had noticed a swelling of the left side of the head and a bruise of the left forearm about an hour later but had not sought medical advice as the child remained well and they were busy preparing for Ramazan. However, over the last twenty four hours the boy had vomited three times, had become sleepy and less responsive and as such they had brought him to hospital.
   The father is a small scale businessman and the mother is a housewife. The boy has two elder brothers and one of them had been attending clinic regularly but has defaulted clinic over the last 8 months as the parents felt that he was quite well.
   On examination the child is drowsy and opens his eyes when spoken to by the mother. A swelling of 2x2 cm is noted in the left parieto occipital region and a recent bruise is seen on the posterior aspect of left forearm. His pulse rate is 130 beats per minute and capillary refill time is 3 seconds. He is breathing comfortably and his SPO_2 on room air is 92%. A complete neurological examination is difficult as the child is drowsy and his pupils are inequal but react to light. His lower limb reflexes are exaggerated.

   1.1. What immediate steps will you take in managing this child?
   (20 marks)

Contd……/2-

In one hours' time the following investigations are available

White Cell Count	11 x 10^9/L N-45%, L-54%	(4-11)
Haemoglobin	7.8g/dl	(11-14)
Platelet count	245x 10^9	(150-460)
Serum Na	129mmol/L	(135-145)
Serum Pottasium	3.9mmol/L	(3.5-4.5)
Serum Creatinine	40 μmol/L	(44-110)
CRP	36 mg/dl	(<6)
Bleeding time	2.5 minutes	(2-9)
Clotting time	16 minutes	(4-10)

Preliminary report of the CT scan of brain –
No bone fractures are noted, Effacement of the sulci and gyri pattern is noted. A large intracranial bleed is noted in the parieto-occipital region with features of obstructive hydrocephalus.

1.2. What is the most likely underlying diagnosis? (20 marks)

1.3. List two (2) other investigations that you would order to confirm your diagnosis. (20 marks)

1.4. Cnsidering the preliminary CT scan findings, list precisely three (3) immediate steps you would take to improve the neurological outcome of this boy. (30 marks)

1.5. Assuming that this child recovered following this event mentioned the most important step in his long term management. (10 marks)

Contd……/3-

2. A five month old girl was admitted with cough and fever of 5 days duration. She was born to second degree consanguineous parents from a low socio economic background. The mother needed a blood transfusion during pregnancy. The baby weighed 1.8kg at birth, was exclusively breast fed and had been followed up in the well baby clinic with concerns of poor head control.
On examination her weight was 2.9 kg and length was 55 cm. Weight for length was well below 3SD. She was ill looking, febrile and pale but not dehydrated. There was no lymphadenopathy or hepatosplenomegaly. There were bilateral crepitations in the lungs.
Following investigations results were available

Haemoglobin	2.8g/dl	(11-15)
White Cell Count	5.2 x 10^9/L	(4-11)
	N – 9% L- 83 % M- 3% E – 5%	
Red Cell Count	2.9 x10^9	(4.5x10^9)
MCV	100 fl	(78-90)
MCH	29pg	(27-30)
MCHC	34g/dl	(32 -35)
Platelet count	60 x 10^9	(150-450)
CRP	60mg/dl	(<6)
ESR	55 mm/1st hour	(<20)
Blood culture	No growth	
NPA for viral panel	Negative	
Serum Sodium	135mmol/L	(135-145)
Serum Potassium	4.2 mmol/L	(3.5 -6)
Blood Urea	4.8mmol/L	(4-6)
Serum Albumin	38 g/L	(35-50g/L
Serum ferritin	25 pg/L	(9- 220)
Chest x-ray	Bilateral inflammatory shadows	

Blood Picture - Red cells are hypochromic and oval macrocytes are noted, Mild red cell poikilocytosis is also seen. Hyper segmented neutrophils were noted. Platelets are low in number.

2.1. How would you treat his anemia? (20 marks)

2.2. Identify four (4) other important aspects that need intervention and outline the appropriate management for each of them. (40 marks)

Contd……/4-

Upon recovery the child was referred back to the local hospital for follow up. The girl was readmitted at the age of one year with a febrile illness. She was found to be severely pale and the investigations revealed a macrocytic anaemia. Mother was feeding the child as instructed and had missed only two consecutive clinic visits prior to this admission.

2.3. List further investigations you would perform giving reasons, to detect the underlying cause for this presentation. (40 marks)

Contd……/5-

3. A 2-year-old is transferred from a peripheral hospital with a 5 day history of fever, lethargy and drowsiness. He presented to peripheral hospital 3 months ago with a history of pain and swelling of the right ankle joint and fever. He was commenced on intravenous antibiotics. Since there was no response he underwent imaging studies and surgical exploration. During the exploration some necrotic bone material was removed. The material removed was cheesy in appearance and showed pus cells on gram stain but cultures remained sterile. He was treated with intravenous flucloxacillin for 3 weeks and was discharged on oral antibiotics for another 3 weeks. However, the child continued to have on and off low grade fever and a painful limp for which he received further courses of antibiotics.

   He was born by normal vaginal delivery with a birth weight of 2.1kg. The maternal grandmother is the main carer as his mother is a hospital employee and father travelled overseas frequently for business purposes.

   His weight is 10 kg (<-2SD) and height is 85cm (Mean). He is febrile and has cervical and inguinal lymphadenopathy. There are bilateral coarse crepitations and abdominal examination revealed hepatosplenomegaly.

   Following investigation results are available:

Haemoglobin	9.1g/dl	(11-15)
White Cell Count	10.5 x 10^9/L	(4-11)
	(N - 65%, L - 30%, M - 3%, E – 2%)	
Platelets Count	648 x 10^9/L	(150-450)
CRP	70mg/dl	(<6)
ESR	120mm 1st hour	(<20)
AST	238 IU/L	(<40)
ALT	123 IU/L	(<40)
RBS	128 mg/dl	(80)
LDH	440 U/L	(215-368)
EBV IgM	Negative	
Mycoplasma IgM	Negative	
ANA	Negative	
Total IgG	1780mg/dl	(700-1600)
Total IgA	476mg/dl	(70-400)
Total IgM	240mg/dl	(40-230)
Alk Phosphatase	271U/L	(104-345)
Total Bilirubin	0.8mg/dl	(0.2-1.2)
INR	0.98	

   Blood film showed normochromic normocytic anaemia with rouleaux formation and thrombocytosis. The white cell number and morphology was normal.

Contd……./6-

3.1. What is the most likely diagnosis? (20 marks)

3.2. What is the most likely underlying predisposing condition leading to the diagnosis mentioned in 3.1 (15 Marks)

3.3. List five (5) investigations that you will do to support the diagnosis (20 marks)

3.4. Outline the specific management. (45 marks)

Contd……./7-

4. A 4-month old baby presents to the emergency department with a history of diarrhea and fever for 4 days associated with progressive feeding and breathing difficulties.

On examination, the baby had a fair complexion, was febrile and hypotonic. She was crying inconsolably and was moving limbs spontaneously when handled. The anterior fontanelle was depressed. Her pulse rate was 150/min, blood pressure 70/45 mmHg, capillary re-filling time was 3 seconds and the respiratory rate was 60 /minute with normal breath sounds.
The baby was recently treated with intravenous antibiotics for 3 weeks for presumed sepsis and had developed oral candidiasis during the hospital stay.
Following investigation results are available:

Serum Sodium	148mmol/L	(135-145)
Serum Potassium	4.3mmol/L	(3.5-4.5)
AST	42 IU/L	(<40)
ALT	46 IU/L	(<40)
Serum Calcium	2.4 mmol/L	(2.2 -2.7)
Haemoglobin	11.2 g/dl	(11-15)
White Cell Count	25x 10^9/L	(4-11)
	N – 69%, L – 30%	
Platelets Count	154x10^9/L	(150-450)
Arterial blood gas	pH 7.1	(7.35-7.45)
	PO_2 87 mmHg	(80-100)
	PCO_2 35 mmHg	(35-45)
	HCO_3- 12mmol/l	(20-24)

4.1. List three (3) differential diagnosis that you would consider. (15 marks)

4.2. Outline five (5) important steps in the initial management. (25 marks)

Contd....../8-

Following Investigations performed 24 hours after initial management showed:

Serum Sodium	138mmol/L	
Serum Potassium	4.3mmol/L	
AST	38 IU/L	
ALT	43 IU/L	
Serum Calcium	2.3mmol/L	
Serum Lactate	2.4 mmol/L	(<2.2)
Serum Ammonia	86 mmol/L	(<40)
Arterial blood gas	PH 7.02	
	HCO_3- 9 mmol/l	
	PO_2 85mmHg	
	PCO_2- 25mmHg	
Urine Ketone bodies	negative	

4.3. List three (3) further in investigation that you would perform to confirm the diagnosis (15 marks)

4.4. Discuss further management of this child (45 marks)

Contd……./9-

5. A 29-year-old primi mother was admitted to the maternity ward of a base hospital with labour pains at 23 weeks of gestation. She has had primary sub fertility for 5 years and conceived this time following the 3rd In vitro fertilization (IVF). She is otherwise healthy and the antenatal period has been uneventful. She is a graduate from a local university and specialized in statistics. Her husband is a legal officer in the Attorney General department. The obstetrician calls you to inform regarding this lady.

    5.1. What is the most important information that you would like to know from the obstetrician? (20 marks)

    5.2. Once you receive the required information, what is the next most important step? (20 marks)

    5.3. What information would you share with the parents? (consider the ~~national guideline~~ on resuscitation of extremely premature/low birth weight babies) (30 marks)

    5.4. How would you manage this baby if the baby is not viable (30 marks)