Examination for Master Degree in: Pediatrics
Course Title: Pediatrics
Date: October 28, 2020 (Paper I)
Time allowed: 3 Hours
Total Assessment Marks: 100 (4 Pages)

Tanta University
Faculty of Medicine
Department of Pediatrics

All questions should be tried:

Q 1) Pediatric Cardiology (20 marks)

Discuss etiology, pathophysiology, diagnosis, and treatment of systemic hypertension in Pediatrics.

Q 2) Pediatric Emergencies (16 marks)

A. Discuss the management of hypothermia. (5)

B. Mention the cardiac, respiratory and central nervous system physical findings in poisoning. (4)

C. Problem Solving: (3)

A 3-year-old boy, on the oncology ward, was in second remission for Acute Lymphoblastic Leukemia (ALL). He underwent an allogeneic Bone Marrow Transplant (BMT) 14 days ago, now presents with poor perfusion and fever 38.5 °C, evaluated 2hr earlier by junior resident because he did not look well. There was no history of cough, runny nose, headache, vomiting, diarrhea, or urinary symptoms. He didn't fully cooperate for temperature measurement, as he was quite upset after being awoken. The remainder of his examination was unremarkable, heart rate 160/min, which persisted even when he stopped crying. The resident elected to wait and see the evolution of his condition, asking for vital signs assessment in 2 hours. He received bone marrow from his 5-year-old matched sibling, following a preconditioning regimen of cyclophosphamide and Total Body Irradiation (TBI). Both the donor and recipient were CMV negative. A central venous catheter was inserted into the superior vena cava (SVC) prior to transplantation and was functioning well. As expected, the patient had not yet demonstrated evidence of engraftment with the neutrophil count always remaining below 0.1×10^9. He continued to require intermittent platelet transfusions, every 2-3 days. Fluconazole prophylaxis and IVIG were given. TPN was started because of poor oral intake, worsened by significant mucositis. Examination: The child looked generally unwell but was alert and protecting his airway. His heart rate was 180 beats/min with a blood pressure of 80/50mmHg. Capillary refill was prolonged at 5 seconds and the peripheries were cool to touch.

1. **What is the possible diagnosis?**
2. **Mention the initial management in ER and the needed investigations.**
3. **What is the PICU management?**

D. MCQs:

1. **A child presents with diarrhea and peripheral circulatory failure. The arterial pH is 7.0, PC02 15 mm Hg, and PO2 76 mm Hg. What will be the most appropriate therapy: (2)**
   a. Sodium bicarbonate infusion
   b. Bolus of Ringers lactate
   c. Bolus of hydroxyethyl starch
   d. 5% Dextrose infusion

2. **An alert 6-month-old child is brought with vomiting and diarrhea. RR-45/min, HR-180/min, SBP-85mmHg. Extremities are cold and mottled. Capillary refilling time is 4 secs. Diagnosis is: (2)**
   a. Early compensated shock due to hypovolemia
   b. Early compensated shock due to supraventricular tachycardia
   c. Late decompensated shock due to hypovolemia
   d. Late decompensated shock due to supraventricular tachycardia

---

Q 3) Infectious Diseases (16 marks)

A. Discuss diagnosis, prevention and treatment of diphtheria. (5)

B. Mention presentations, investigation and treatment of encephalitis. (4)

C. Problem solving: (3)

A newborn male baby was presented with delayed cry, respiratory distress, having a birth weight of 2,150 g. The mother of the infant had been born in East Africa and had travelled to the UK at around week 12 of pregnancy; the mother had a 2-day history of a rash-type illness shortly before arrival in the UK. She did not seek medical attention for her rash. Intrauterine growth restriction (IUGR), cataract, patent ductus arteriosus (PDA), microcephaly and a positive serology test are present.

1. **What is the possible diagnosis?**
2. **How can you confirm diagnosis?**
3. **Prevention?**

D. MCQs :

1. The Period of infectivity in MUMPS is: (2)
   a. From 7 days before to 9 days after the onset of parotitis
   b. From 4 days before to 10 days after the onset of parotitis
   c. From 14 days before to 2 days after the onset of parotitis
   d. From 2 months before to 3weeks after the onset of parotitis

2. All of these drugs can be used in treatment of typhoid fever Except: (2)
   a. Ampicillin
   b. Corticosteroids
   c. Acyclovir
   d. Ceftriaxone

Q 4) Respiratory System (16 marks)

A. Write short essay on management of pneumonia in school age children. (5)

B. Mention treatment of moderate persistent asthma. (4)

C. Problem solving: (3)

A 4-year-old boy was admitted to the hospital last night with the complaint of "difficulty breathing." He has no history of lung infection, no recent travel, and no day-care exposure; he does, however, have an annoying tendency to eat dirt. In the emergency center, he was noted to be wheezing and to have hepatomegaly. Laboratory studies revealed leukocytosis with eosinophils 60% of WBCs.

1. **What is the probable diagnosis?**
2. **How to confirm diagnosis?**
3. **How to treat this patient?**

D. MCQs:

1. **Children with croup should be hospitalized for any of the following EXCEPT: (2)**
   a. Progressive stridor
   b. Severe stridor at rest
   c. Cyanosis
   d. Congenital heart disease
2. **The MOST common presenting feature of cystic fibrosis is: (2)**
   a. Failure to thrive
   b. Persistent respiratory symptoms
   c. Meconium ileus
   d. Hepatobiliary disease

Q 5) CNS & Neuromuscular (16 marks)

A. Discuss in details disorders in neuronal migration. (5)

B. Mention clinical picture of focal seizure with impairment of consciousness. (4)

C. Problem solving: (3)

A 9-month-old male patient was admitted to the pediatric neurology department because of progressive generalized weakness which had started 1 month before. There were no important features in his prenatal, natal and postnatal history, except an upper respiratory tract infection 3 weeks before the clinical onset of symptoms. The family history was unremarkable. On physical examination he was oriented to person and his vital signs were within normal limits. He was not able to move any limbs, muscle tone was decreased and deep tendon reflexes were absent in his upper and lower extremities. He was crying in response to pain, but unable to move his limbs. Abdominal, cremasteric and anal reflexes could not be obtained. Babinski sign was present. Cranial nerves were intact. The remainder of the physical examination was normal, craniospinal magnetic resonance imaging (MRI) was obtained immediately. On T2 weighted images, a diffuse, symmetrical increased signal within the whole spinal cord was observed. Lesions showed no contrast enhancement. Contrast-enhanced MRI angiography demonstrated normal vascular structures. No other abnormality was detected. Cranial MRI revealed no abnormality. On laboratory examinations, the hematological and biochemical parameters for serum were within normal ranges. Cerebrospinal fluid protein was 15.8 mg/dL (15-40 mg/dL is the normal range for cerebrospinal fluid protein in our laboratory) and glucose content was 58 mg/dL (simultaneous blood sugar 90 mg/dL). There was no pleocytosis. No malignant cells were seen in the cerebrospinal fluid. Cerebrospinal fluid oligoclonal band were negative and the IgG index was normal.

1. **Mention the diagnosis.**
2. **Mention the treatment.**
3. **Mention the differential diagnosis.**

D. MCQs:

1. **Potassium related periodic paralysis, one of the following is wrong:** (2)
   a. It is episodic weakness
   b. Weakness usually after awakening
   c. Cardiac muscle and diaphragm are usually affected
   d. CPK is usually elevated
2. **Vigabatrin is the drug of choice in the treatment of:** (2)
   a. Absence seizures
   b. Infantile spasm
   c. Partial seizures
   d. Reflex seizures

Q 6) Hematology & Oncology (16 marks)

A. **Give a short account on platelet function disorders.** (5)

B. **Enumerate complications of blood transfusion.** (4)

C. Problem solving: (3)

A 14-year-old male presents with sudden onset of left upper quadrant abdominal pain. Doppler ultrasound reveals a hepatic vein thrombosis. His past medical history is significant for aplastic anemia, which was diagnosed at age 10. He was treated with antithymocyte antiglobulin and cyclosporine, with good recovery of his counts. His current blood counts are all within normal ranges.

1. **Mention the possible diagnoses for this case.**
2. **What laboratory test will be likely to reveal the diagnosis?**
3. **What is main line of treatment?**

D. MCQs:

1. **The single-best predictor of favorable outcome in AML is the presence of which of the following?** (2)
   a. Ataxia Telangiectasia
   b. Fanconi anemia
   c. Myelodyplastic syndrome
   d. Trisomy 21
2. **Auer rods are typically seen with which form of leukemia?** (2)
   a. Acute lymphoblastic leukemia
   b. Acute myeloid leukemia
   c. Chronic lymphocytic leukemia
   d. Burkitt's leukemia

==========Good Luck========

Chairman of Department
Prof. Abdelrahman Elmashad

Abdelrahman Elmashad