



Cert Gastroenterology(SA) Paed

THE COLLEGES OF MEDICINE OF SOUTH AFRICA

Incorporated Association not for gain
Reg No 1955/000003/08

Examination for the Subspeciality Certificate in Gastroenterology
of the College of Paediatricians of South Africa

25 July 2019

Paper 1

(3 hours)

All questions to be answered. Each question to be answered in a separate book (or books, if more than one is required for the answer)

Please note the meaning of the following terms

- i) "List" means to enumerate i.e. specify a list or an outline form of reply in concise form.
- ii) "Describe" means to answer in a brief narrative form.
- iii) "Discuss" means that you need to analyse carefully, and construct an answer that provides an overview of the various factors that may contribute to a particular problem or treatment- this type of question calls for a more complete response.

- 1 a) An 8-year-old female presents with a six-month history of loss of appetite, weight loss, recurrent abdominal pain, and pale coloured stool. She has had two previous admissions for abdominal pain at a district hospital. During the current admission, her serum amylase and lipase levels were mildly elevated and her faecal elastase result was suggestive of severe exocrine pancreatic insufficiency.
- i) Discuss embryology of the pancreas with an emphasis on anatomical abnormalities that predispose to recurrent pancreatitis. (6)
 - ii) List differential diagnoses in a child with recurrent pancreatitis (excluding the anatomical causes mentioned above). (5)
 - iii) List the radiological investigations that you would perform on the above child and provide a rationale for using these imaging tests. (4)
- b) A few months later, after pancreatic enzyme replacement therapy (PERT) is commenced, you note that there have been NO improvements in her growth.
- i) Name the enzymes contained in PERT preparations. (2)
 - ii) Discuss nutritional management of acute recurrent pancreatitis under the following sub-headings: calories, vitamins and minerals, and other therapies. (6)
 - iii) Discuss reasons why this girl may not have responded to PERT. (2)
- [25]
- 2 Simon is a 12-year-old boy with a long-standing history of central abdominal pain. His pain is poorly localised and does not radiate. He reports mild relief when using antispasmodics (hyoscine). He suffers with intermittent constipation and his pain seems to improve after defaecation.
- a) What are the criteria used to diagnose Irritable Bowel Syndrome (IBS)? (5)

- b) What are the 'red flags' on history and examination that would suggest an underlying organic aetiology for the pain? (5)
- c) Briefly describe the pathophysiology of IBS. (5)
- d) How will you manage Simon? Include relevant investigations and treatment options for IBS. (10)
- [25]

- 3 a) A 9-year-old girl is referred to the paediatric surgeons with a history of jaundice and previous episodes of haematemesis. Upper gastrointestinal endoscopy confirms the presence of oesophageal varices. The child was referred for consideration of splenectomy or a distal splenorenal shunt. You are asked to assess the patient to determine the underlying liver pathology. She has the following laboratory results:

Full blood count: leucocyte count $2.6 \times 10^9/L$ (54% neutrophils, 30% lymphocytes, 11% monocytes, 2% eosinophils), haemoglobin 11.7 g/dL, haematocrit 24.8%, mean corpuscular volume 88.4 fL, and platelet count $43 \times 10^9/L$.

International Normalised Ratio (INR): 1.26, partial thromboplastin time 30.8 s (control 26 s), and serum IgG level: 37.6 g/L

Liver function tests: Total bilirubin 59 $\mu\text{mol/L}$, direct bilirubin 49 $\mu\text{mol/L}$, total protein 87 g/L, albumin 34 g/L, ALT 160 U/L, AST 133U/L, ALP 257 U/L, GGT 324 U/L

- i) Which conditions would you consider in the differential diagnoses? (3)
- ii) List further laboratory investigations that need to be performed. (3)
- b) Her liver biopsy report reads: "The portal tracts show moderate infiltrate comprising of lymphocytes and plasma cells. The tracts are oedematous with periductal onion skin fibrosis. There is mild interface hepatitis around all portal tracts. Spotty necrosis is noted (2-4 foci per 100 times magnification). Reticulin staining highlights periportal, septal and bridging fibrosis with nodules (Ishak fibrosis scale score is 5 out of 6)"
- i) What is her most likely diagnosis? (2)
- ii) Discuss her treatment and long-term management goals. (6)
- c) The paediatric surgeons would like to know whether to proceed with a distal splenorenal shunt
- i) What is your advice regarding a distal splenorenal shunt in this patient? (1)
- d) After being on standard therapy for one year, you note that the patient's transaminases are persistently elevated. Compliance with treatment, although of concern initially, is now not thought to be a problem.
- i) Discuss alternative medical treatments for patients' refractory to standard therapy. Tabulate treatment options, mode of action of drugs, and the major side-effects of these alternative treatments. (8)
- e) The parents are questioning whether liver transplantation may be considered in their daughter
- i) Briefly discuss the likely outcomes of liver transplantation in this specific patient (2)
- [25]

- 4 A 25-year-old mother presents with her 2-month-old infant asking for advice on introduction of solids to her infant's diet. The infant was born at term and is presently exclusively breastfed.
- a) Briefly discuss physiology of lactation. (3)
 - b) Define the following terms:
 - i) Exclusive breast feeding. (2)
 - ii) Full breast feeding. (2)
 - iii) Complementary feeding. (2)
 - c) Tabulate the differences between protein and carbohydrate content of breast milk and full cow's milk. (4)
 - d) What advice would you give to the mother regarding:
 - i) Timing of introduction of complementary foods. (2)
 - ii) Milk feeding during complementary feeding period. (2)
 - e) On history, the mother discloses that there is a family history of coeliac disease. She would like to know the following:
 - i) The risk of coeliac disease to her infant. (1)
 - ii) Advice on introducing gluten to the infant's diet. (2)
 - f) The mother would like to supplement breastfeeding with rooibos tea that contains added sugar. What advice would you give her? (3)
 - g) Comment on the use of palm oil in infant formula. (2)
- [25]



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26 July 2019

Paper 2

(3 hours)

All questions to be answered. Each question to be answered in a separate book (or books, if more than one is required for the answer)

Please note the meaning of the following terms

- i) "List" means to enumerate i.e. specify a list or an outline form of reply in concise form.
- ii) "Describe" means to answer in a brief narrative form.
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- 1 A 9-month-old presents to her paediatrician with acute gastroenteritis. The paediatrician suggests the use of probiotics.
 - a) Define the terms 'prebiotic' and 'probiotic'. (2)
 - b) List six microorganisms commonly used in probiotic preparations. (3)
 - c) Discuss use of probiotics in children in the following situations
 - i) Acute viral gastroenteritis. (2)
 - i) Prevention of *Clostridium difficile* infection. (2)
 - ii) Hepatic encephalopathy. (1)[10]
- 2 A 14-year-old boy with Crohn disease presents with painful itchy anus and purulent discharge.
 - a) Discuss the various methods of monitoring disease activity in Crohn disease. (6)
 - b) List the clinical manifestations of perianal Crohn disease. (3)
 - c) What is the evidence for use of exclusive enteral nutrition in perianal Crohn disease? (1)[10]
- 3 A 2-month-old female with biliary atresia undergoes a Kasai portoenterostomy (KPE). The child's KPE is unsuccessful, and at 5 months-of-age the infant remains icteric with acholic stools.
 - a) What management would you implement to maximise the success of KPE pre- and post- surgery? (6)
 - b) Tabulate complications of fat-soluble vitamin deficiencies. (4)[10]

- 4 A 12-year-old girl undergoes upper endoscopy for chronic epigastric pain. Her endoscopy did not show any erosions or ulcer, but "nodular gastritis" is noted. Histology confirms chronic gastritis with a heavy *Helicobacter pylori* load.
- Discuss the risks and benefits of eradication therapy in this patient. How would you advise the parents? (8)
 - She received a course of clarithromycin for an upper respiratory tract infection 3 weeks ago. If you were to treat her, what regimen would you use? (2)
- [10]
- 5 Discuss the endoscopic management in the following situations:
- Button battery ingestion in a 6-year-old child. (4)
 - Congenital duodenal web in a 2-year-old child. (3)
 - Oesophageal food impaction in a 9-year-old child. (3)
- [10]
- 6 A 9-week-old boy presents to hospital with abdominal distention. On examination, his growth parameters are noted to be < -3 z-score for both weight and height. He is anicteric, pale and not dysmorphic. Abdominal examination reveals a 2 cm hepatomegaly, 3 cm splenomegaly and ascites. Craniotabes is noted.
- List 3 conditions that can present with ascites in this age group. (3)
- His blood investigations reveal the following:
- Full blood count: leucocyte count $12.3 \times 10^9/L$, haemoglobin 8.0 g/dL, mean corpuscular volume 110 fL, and platelet count $267 \times 10^9/L$. International Normalised Ratio (INR): 1.04, partial thromboplastin time 28.4 s (control 26 s), and serum IgG level: 37.6 g/L
- Liver function tests: Total bilirubin 31 $\mu\text{mol/L}$, direct bilirubin 28 $\mu\text{mol/L}$, total protein 37 g/L, albumin 25 g/L, ALT 82 U/L, AST 198 U/L, ALP 1266 U/L, GGT 18 U/L. Urea & electrolytes: Na 138 mmol/L, K 4.4 mmol/L, Cl 109 mmol/L, CO₂ 14 mmol/L, urea 3.7 mmol/L, creatinine 31 $\mu\text{mol/L}$. Serum glucose 2.7 mmol/L, Base excess: -11 mmol/L, HCO₃: 13.1mmol/L
- Ascitic fluid analysis: SAAG (serum-ascites albumin gradient): 2.2 g/dL
Urine reducing substances: Positive
- Which is the most likely diagnosis? (1)
 - Which is the commonest genetic mutation causing this disease in the indigenous African population of South Africa? (1)
 - How would you manage this condition? (2)
 - What counselling would you give to the parents regarding:
 - Future pregnancies (1)
 - Long-term complications of this condition (2)
- [10]
- 7 Regarding cow's-milk protein induced allergy in a 2-year-old:
- Describe the challenge procedure in which cow's-milk protein is re-introduced into the diet. (5)
 - Discuss the use of the 'Milk Ladder' to re-introduce milk and dairy to the child's diet. (5)
- [10]

- 8 An 8-year-old boy was diagnosed, on incidental testing, as being Hepatitis B (HB) sAg and HB eAg positive. His HB viral load is 12 673 556 IU/ml (log conversion 7.1). He was treated with lamivudine for one year but his serum viral load remained extremely high. There was no seroconversion and his current transaminases are ALT 146 U/L and AST 63 U/L.
- a) What are the possible reasons for the non-responsiveness to therapy? (4)
 - b) How would you manage the child now? (6)
- [10]
- 9 Write short notes on distal intestinal obstruction syndrome (DIOS) in a child with cystic fibrosis. Include clinical differentiation between incomplete and complete DIOS as well as management. [10]
- 10 Regarding paediatric parenteral nutrition:
- a) How would you calculate energy needs in a premature child requiring parenteral nutrition? (2)
 - b) What are the recommendations for amino acid use in parenteral nutrition for premature infants? (3)
 - c) What complications would you monitor for in an infant on parenteral nutrition? What investigations would you perform to detect these complications? (5)
- [10]