THEORY/PROBLEM SOLVING

MDC-PA EXAMS 2024 DECEMBER

INTERNAL MEDICINE

1.A man was brought to your facility with difficulty in breathing. He has a history of reoccurrence of this episode since infancy.

A.What is the most likely diagnosis?

B.What 4 features makes the condition severe.

C.Give 4 investigations you will request

D.What will be your initial management

SCHEME

A.Acute asthmatic attack/ Acute asthmatic exacerbation

B.Tachycardia, Inability to complete sentences in one breath, Rapid respiratory Rate (More than 30cm), Rapid pulse, Peak expiratory flow rate less 50%

C.Chest x ray to rule out cardiopulmonary complications, Full blood count, Stool routine examination, Sputum for acid fast

bacilli, Blood urea, electrolyte, and creatinine, Bioinflammatory markers ; erythrocyte sedimentation rate, Spirometry*

D.Admit, Call for help, assign roles, do your primary survey(check and maintain airway patency, adequate breathing and good circulation), Oxygen resuscitation as appropriate ,conduct investigations as ordered above,Start Beta 2 agonist (salbutamol, ipratropium bromide nebulization), Give steroids (Intravenous hydrocortisone), Adequate Hydration as needed , Identify and treat any co-infections, give analgesic if indicated, Monitor vitals and refer for further management.

2.A.State two(2) types of liver abscess

B.State the risks factors of Liver abscess

C.What are the complications of liver abscess?

D.What are the management options?

SCHEME
A.Pyogenic Liver Abscess, Amoebic Liver Abscess
B.Previous liver abscess, Biliary tract disease, Diabetes mellitus, Immunosuppression, Recent abdominal surgery, Recurrent Amebic dysentery_
C.Rupture of abscess, Septicemia, Portal vein thrombosis, Fistula formation, Biliary obstruction ,Peritonitis
D.Antibiotic therapy, Percutaneous drainage, Surgical intervention, Supportive care_
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3.A woman presented with polyphagia and frequent micturition. She has loss weight.
A.What is your diagnosis?

B.State 3 types of diabetes

B.List 4 causes of polyphagia and weight loss

C.Give 8 differences between DKA and HHS

D. Outline your management principle of your diagnosis

E. Mention 3 macro vascular complications .

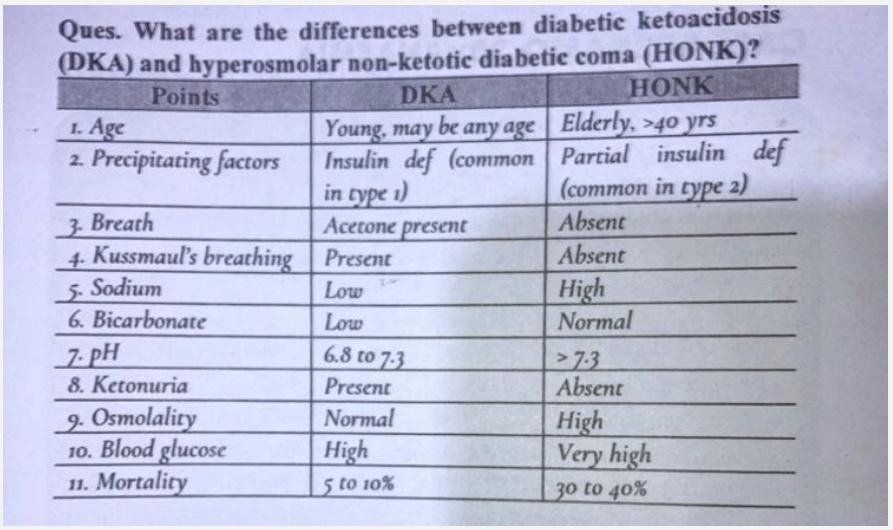
SCHEME

A. Diabetes Mellitus

B.Type 1 diabetes, Type 2 diabetes, Gestational diabetes

C.Diabetes mellitus, Hyperthyroidism, Malnutrition, Malabsorption syndromes,

D.



Ques. What are the differences between diabetic ketoacidosis (DKA) and hyperosmolar non-ketotic diabetic coma (HONK)?

Points	DKA	HONK
1. Age	Young, may be any age	Elderly, >40 yrs
2. Precipitating factors	Insulin def (common in type 1)	Partial insulin def (common in type 2)
3. Breath	Acetone present	Absent
4. Kussmaul's breathing	Present	Absent
5. Sodium	Low	High
6. Bicarbonate	Low	Normal
7. pH	6.8 to 7.3	> 7.3
8. Ketonuria	Present	Absent
9. Osmolality	Normal	High
10. Blood glucose	High	Very high
11. Mortality	5 to 10%	30 to 40%

E.Blood glucose control, Lifestyle modification, Medication adherence, Regular glycemic monitoring, Prevention of complications

F. Myocardial Infarction ,Stroke, Peripheral vascular disease

GENERAL SURGERY

1. A 4 year old boy is brought to the clinic by his mother with a complaint of progressive enlargement of the scrotum.The swelling becomes enlarged by evening and reduced in the morning.

A. State 3 differentials

B. List 2 possible contents in this swelling

C. List 3 investigations

D. Which two complications if untreated

SCHEME
A.Inguino-scrotal hernia, Hydrocoele,Varicocele,Hydrocoele of the spermatic cord
B.Intestinal loops, omentum, Peritoneal fluid
C.Scrotal ultrasound scan, Full blood count, Blood grouping and cross matching, Urinalysis, Transillumination test
D.Irreducibility, Incarceration or strangulation of herniated bowel, Testicular atrophy, Fistula formation, Impotence

2. A 22yrs old boy was rushed into the ER after road traffic accident with pain on the right side of his chest and difficulty in breathing.
A. List 3 possible causes
B. List 3 measures you'll carry out in his initial assessment
C. Mention the xray findings for one of the above
D.List 3 steps in the treatment of the patients

SCHEME:

A.Right Pneumothorax, Right rib fracture,Flail chest, Right haemothorax

B.Check Airway, Breathing, Circulation, Vital Signs Monitoring, Physical Examination of the chest

C.Leftsided shift of mediastinal structures in right Pneumothorax, Right rib fracture on chest x-ray, Meniscus of fluid blunting the costophrenic angle or diaphragmatic surface and tracking up of the pleural margins of the chest wall in haemothorax

D.

Prop up in bed, Ensure patent airway, breathing and circulation, give oxygen, analgesics as indicated.

Intravenous fluids as needed

Close monitoring of vitals and urgent referral.

NB;General management:

Admit, Trigger referral, Cardiac position, primary survey, oxygen therapy,secure intravenous access, order investigations(Blood grouping and cross matching ,Give Analgesics for pain, identify and treat underlying cause if possible, monitor vitals,Refer to surgeon for further management.

3.A 48year old woman with 4 previous CS presents to your clinic with colicky abdominal pain and vomiting.The last time was a month ago. She developed absolute constipation 3days earlier.The nurse at the clinic gave analgesia before your consultation.

A. What is your diagnosis ?

B. Name two physical signs that will be present in the abdomen

C. Which two investigations will you request?

D. List four initial steps in the management

SCHEME

A.Acute Mechanical Intestinal obstruction secondary to surgical adhesions.

B. Distended abdomen on inspection, Generalised abdominal tenderness, Rebound tenderness ,Guarding,Board-like abdominal rigidity,Diminished /silent bowel sounds.

C.Full blood count, Blood grouping and cross matching,Erect and supine abdominal X-ray, Blood urea, electrolytes and creatinine.

D.-Primary survey, Ensure Nil per os, pass Nasogatric tube for gastric decompression ,

-Secure two wide bore cannulae ,take samples for investigations, start intravenous fluid resuscitation,pass a urethral catheter,

-Start broadspectrum antibiotics, and give Analgesics,

-Monitor vitals, Urgent referral to the surgeon.

KEYS:
-Primary survey and stabilization
-Intravenous fluid resuscitation
-Medications: Antibiotics, analgesics
-Close monitoring and referral

OBSTETRICS AND GYNECOLOGY

1.A 44 year old grand multiparous woman and with a previous history of post-partum hemorrhage. She has given birth to 4.5kg baby, she had a prolonged labor for more than 16 hours and following delivery, she continues to bleed.

A.What is the most likely diagnosis?

B.Mention 3 risk factors of her condition?

C.Mention 3 drugs, dosage and route of administration you will use to stop her bleeding?

D.Mention 3 surgical methods or procedures, you will use to stop her bleeding

SCHEME

A.Primary Postpartum hemorrhage secondary to uterine atony

B.Grand multiparity (multiple previous pregnancies), Previous history of postpartum hemorrhage, Prolonged labor (>16 hours)

C.Oxytocin: 10-40 IU intravenous infusion/Intramuscular, Misoprostol: 800-1000 mcg rectally/Sublingual, Tranexamic acid: 1 g intravenous

D.Uterine compression sutures (e.g., B-Lynch technique), Uterine artery ligation (O'Leary sutures), Uterine balloon tamponade,Total abdominal hysterectomy

2.A.What cancer commonly affects the opening of the uterus in Ghana?

B.Mention four (4) factors that will predispose one to develop cervical cancer?

C.List and briefly describe 4 screening tests for cervical cancer?

D.If you are to give a health educational message concerning cervical cancer, mention 4 topics you will talk about to prevent this condition?

SCHEME

A. Cervical cancer

B.HPV infection, Early sexual activity, Multiple sexual partners, Weakened immune system

C.Pap smear, Human papilloma virus testing, Visual Inspection with Acetic Acid, Colposcopy

D.Importance of regular screening, HPV vaccination, Safe sexual practices, Healthy lifestyle choices

3.A women at 7 weeks gestation presented with excessive nausea and vomiting and inability to pass anything down the throat. She was severely dehydrated

A. What's the diagnosis and how will you confirm it ?

B.Comment on what her urine will be like (volume and concentration)

C.How will you manage her without investigations

D.List four complications of her condition

SCHEME

A. Hyperemesis Gravidarum with severe dehydration

:This is a diagnosis of exclusion so it would require to exclude malaria, urinary tract infection, typhoid fever, Appendicitis etc.

B.Scanty and highly concentrated urine

C.Admit, call for help, Assign roles, Primary survey, secure 2 large bore intravenous access, start intravenous fluid replacement, parenteral anti-emetic eg: metoclopramide, pass urethral catheter, monitor vitals closely urine levels output, Encourage on dry foods(biscuits) and oral sips, refer to Obstetrician for further management

D.Hypovolemic shock, Acute kidney injury, Electrolyte imbalance, Metabolic derangement, Cardiac arrhythmia,

PEDIATRICS

1.A four year old boy brought to your consulting room.very lethargic. He has been unwell for 4days. He has been vomiting every food he eats and has a high grade fever 39.0. Random blood sugar was 2.1mmol/l after checking by one nurse and he weighs 16kg.

A. What blood glucose is considered low in well nourish child and low in malnourished child

B. State the type of fluid route of administration you'll use to correct the low sugar

C. What's your next step after correcting the low sugar.

D. State the most common acute complication of low blood sugar

SCHEME

A. WHO defines ; glycemic concentration <2.5 mmol/L(45mg/di) in an adequately nourished child and <3.0 mmol/L(54mg/di) in a severely malnourished child

B.

(4-5mls/kg of 10% dextrose, bolus)

Route - Intravenous bolus
Amount - 5ml/kg(According to WHO) - 5x16 =80mls
Fluid type - 10% Dextrose infusion

C.

Start glucose infusion to maintain normal blood sugar levels. Start oral feed as appropriate. Monitor blood glucose regularly ,treat co-infections, investigate the underlying cause and refer

D.

Seizure and Coma

2.An 8 weeks old female infant had a history of persistent respiratory distress for the past 2 weeks. She also has a history of short frequent feeding, irritability and sweating on feeding. Pregnancy and birth history revealed uneventful pregnancy and delivery, there was no cyanosis at birth.

A. State 2 differential diagnosis

B. Which 2 investigations will you request?

C. Which Risk factors during pregnancy are associated with the above ?

D. How will you manage the child?

SCHEME

Congenital Heart Disease

Respiratory Distress Syndrome

B.

-Chest X-Ray

-Full blood count ,pulse oximetry

-Blood urea electrolytes and creatinine

-Echocardiogram*

C.

-Maternal Diabetes

-Maternal Infections-Rubella, cytomegalovirus

-Substance Abuse, exposure to teratogens, certain medication.

D.

-Trigger referral, conduct primary, give oxygen as indicated

-Secure intravenous access-take sample for investigations, hydrate as appropriate

-Take additional history and examine

-Refer to the pediatrician cardiologist

3.Papa yaw is a known cerebral palsy patient which presents to the Pediatrics emergency with a history of seizures lasting for 3minutes. The first episode of seizures was tonic clonic in nature and associated with tongue biting. Whiles at the emergency unit he gets another seizures.

A. Outline your first aid management

B. Which investigation will you request?

C. Name 2 anticonvulsant that can be used

D. How will you manage this child?

SCHEME
A.
- Ensure patent and maintainable airway, adequate breathing and circulation,
-Secure intravenous access, supplemental oxygen as needed,
- Give anticonvulsant, protect child from harm, tepid sponge , and give antipyretics as indicated.
B.
Full blood count,
Blood film for malaria parasites,
Urinalysis,
Random blood sugar
Blood urea, electrolytes and creatinine
C.
Diazepam, Phenobarbitone, Phenytoin ,Levitiracetam
D.
Reassure caretaker and take additional history, examine, take sample for baseline investigations, abort seizures as appropriate, monitor vitals and seizure chart and refer to the pediatrician for further management

PUBLIC HEALTH

1. A.Define Incidence rate and give examples

B.Mention 6 factors that can help support Breastfeeding

C. List 6 causes of childhood death.

D. Malaria is an endemic in Ghana . Explain.

SCHEME

Incidence rate is the number of new cases of a disease or health event occurring in a defined population during a specified period of time.

Formula:

Incidence Rate = (Number of new cases / Population at risk) × 100

Examples:

- ***50 new malaria cases recorded in a village of 2,000 people in one month***
- ***200 new HIV infections per 100,000 population per year in a region***
- ***30 new tuberculosis cases in a district of 10,000 people in one year***

B.

Early initiation of breastfeeding

Exclusive breastfeeding education

Maternity leave policies

Support from family/spouse

Baby-Friendly Hospital Initiative

Lactation support services

C.

Pneumonia

Malaria

Diarrhoeal diseases

Neonatal infections/sepsis

Malnutrition

Measles

D.

A disease is endemic when it is constantly present in a particular geographical area or population at a relatively stable and predictable rate.

Malaria is endemic in Ghana because:

-The Anopheles mosquito (the vector) breeds throughout the year due to Ghana's warm, humid tropical climate

-Cases occur all year round, not just seasonally, affecting a large proportion of the population consistently

-It is one of the leading causes of outpatient attendance, admissions, and death in Ghana, particularly among children under 5 and pregnant women

-The population has developed a partial immunity from repeated exposure — a hallmark feature of endemic disease

2 A..State Four causes of maternal mortality

B.State 4 diseases contracted from polluted water

C. A hospital records the following data 2,3,5,8,7. Calculate the mean.

SCHEME

A.

Postpartum haemorrhage (PPH)

Eclampsia/Pre-eclampsia

Sepsis/Puerperal infection

Unsafe abortion

B.

Cholera, Typhoid fever, Dysentery (Amoebic/Bacillary), Hepatitis A

C.

Data: 2, 3, 5, 8, 7

$$\text{Mean} = \frac{\text{Sum of all values}}{\text{Number of values}}$$

$$\text{Mean} = \frac{2+3+5+8+7}{5} = \frac{25}{5} = \boxed{5}$$

The mean = 5

3. A. List 6 strategies put in place to ensure survival of children.

B. List 5 sources of safe water to a Community.

C. List 3 airborne diseases you know.

Scheme

GOBIFF


MED KEEN
SERIES