

Exam. marks

- Day one : paper 1 : 150 marks : 3 hours ; ^{→ 180 min}

15 short questions :.....

- Day two: paper 2: 100 marks: 2 hours

Classic MCQ : 60 marks (60 statement) : each 1 mark

Problem solving : 40 marks (20 case) : each Case (2 marks)

- On the average 1 minute for each classic MCQ: 2-3 minutes for each problem solving

- 150 : clinical and oral final exam : one day

110: department exam:

History and examination ^{General + system} (50 marks: 2 stations) – investigations + treatment (20 marks) – differential diagnosis (20 marks) – oral general: 20

40: diagnostic tools :

X-rays ,CT, blood gas, CBC, emergency, urine ^{*} (or stool report), photos [no video - no IMCI]

Chapters grading ??? 16 ch.

Part 2: 9 chapters

Part 1: 7 chapters: growth – genetics- rheumatology)

Questions titles- How to answer

- Enumerate causes of = list causes of = mention causes of
- Diagnosis = diagnostic approach= Diagnostic criteria
- Diagnostic investigations = Investigations: (laboratory + imaging)
- Management : Diagnosis in short - Treatment
- Treatment whenever possible, write shortly on the prevention
- Types of : discuss shortly features of each type

General advises : 1: read? , 2: start with?, 3: write?

Questions grading

A:

دائم التكرار

B:

بعض مره واحد على الاقل

C:

وكم مره جبت

Infections

- Causes of maculopapular rash = Differential diagnosis of maculopapular rash :table;
- Measles
 - . Clinical manifestations of measles :table
 - . Complications of measles.
- Rubella :
 - . Clinical manifestations of german measles.??_table
 - . Complications of german measles ??.
- Roseola infantum: human herpes virus type 6 : clinical picture or compare between measles and Roseola infantum
- Scarlet fever
 - . Clinical picture: table
 - . Complications of scarlet fever and its prevention
- Infectious mononucleosis : clinical manifestations (problem solving)
- Chicken pox: varicella
 - . Clinical manifestations of varicella
 - . Differential diagnosis (or causes) of papulovesicular rash
 - . Complications of chicken pox
- Herpes simplex infections
Human herpesviruse (herpes virus 1, 2 - varicella zoster virus- cytomegalovirus
Epstein Barr virus- human herpes virus 6,7,8) : مش سؤال
- Parvovirus B19 :manifestations
- Enterovirus infections (B)
- Mumps:
 - . Clinical manifestations of mumps:
 - . Complications of mumps:
 - . Differential diagnosis of mumps(DD of parotid swelling)
- Whooping cough. Diagnosis of whooping cough : Q : Cough causes : see respiratory
- Fevers
 - . Grades of fever
 - . Causes of fever
 - . Septicemia: Etiology and clinical features
 - . Management of septicemia (clinical features- investigations-treatment)
 - . Fever with petechial rash (fever with purpuric rash)
 - . Causes of prolonged fever
 - . Investigations of prolonged fever (FUO)
 - . Management of prolonged fever
- Vaccines: important
 - . Hepatitis vaccines-BCG- polio vaccines
 - . Program of vaccination in Egypt (obligatory vaccines)
 - . Vaccination in the first year of life (compulsory and non compulsory)
 - . Viral vaccines
 - . Non compulsory vaccines.

N.B : meningitis + TB : with infections

NB : Enumerate worldwide caused of death in children less than 5 years
(diarrhea- pneumonia – TB- measles- HIV- Malaria - neonatal death – injuries)

Genetics

- **Structural chromosomal abnormalities-numerical chromosomal abnormalities**
- Clinical situation suspecting chromosomal abnormalities:
- Clinical manifestations of trisomy 21.- late medical problems of Down syndrome
- **Genetic types of Down syndrome:** cytogenetics of Down syndrome: A
- Prenatal diagnosis of Down syndrome
- Sex chromosomal abnormalities: A
- **Characteristic features of autosomal dominant inheritance- mention Example :A**
- Characteristic features of autosomal recessive inheritance:A
- **Examples of Autosomal inheritance**
- Characteristic features of Sex linked recessive inheritance :A
- **Characteristic features of Sex linked dominant**
- **Multifactorial inheritance✓✓✓ - characters and examples: A**
- Clinical features of fragile x syndrome??
- Genetic counseling.

Fragile X syndrome (MALE)

X linked inheritance

Fragile site in the distal part of the long arm of the x chromosome
The commonest familial learning difficulties – the second most common genetic causes of severe learning difficulties after Down syndrome

Clinical features

1. Moderate-severe learning difficulty (IQ 20-80, mean 50)
2. Macrocephaly
3. Macro-orchidism (postpubertal)
4. Characteristic facies –
Long face,
Large everted ears,
Prominent mandible and broad forehead, most evident in affected adults.
5. Other features - mitral valve prolapse, joint laxity, scoliosis, autism, hyperactivity

Diagnosed by molecular analysis(DNA analysis).

Growth and development

- Factors affecting physical growth (A)
- Growth curves (A)
- Causes of Macrocephaly – causes of microcephaly
- Causes or differential diagnosis of short stature (A)

Investigations for short stature

Investigation

Significance

X-ray of wrist and hand for bone age	Some delay in constitutional delay of growth and puberty Marked delay for hypothyroidism or growth hormone deficiency or other endocrine causes
Full blood count	Anaemia in coeliac or Crohn's disease
Creatine and electrolytes	Creatinine raised in chronic renal failure
Thyroid-stimulating hormone (TSH)	Raised in hypothyroidism
Karyotype in females	Turner's syndrome shows 45XO
Endomysial and gliadin antibodies	Usually present in coeliac disease
CRP (acute-phase reactant)	Raised in Crohn's disease
Growth hormone provocation tests (using insulin, glucagon or arginine in specialist centres)	Growth hormone deficiency
Corisol and dexamethosone	Cushing
MRI scan if neurological symptoms/signs	Craniopharyngioma

Case

Hypoxic ischemic encephalopathy

Definition

Is the clinical manifestation of brain injury starting immediately or up to 48 hours after asphyxia.

Etiology : enumerate causes of failure of resuscitation

Diagnosis : Hypoxic ischemic encephalopathy : HIE : 3 grades

	Stage 1 : mild	Stage 2: moderate	Stage 3 :severe
Conscious level	Hyper alert	Lethargic	Stuporous
Tone	Normal	Hypotonic	Flaccid (fluctuate between hypotonia and hypertonia)
Moro Reflex	Strong	Weak	Absent No spontaneous movement
Seizures	Absent	common	Prolonged – refractory
Eyes - pupils	Staring - mydriasis	Miosis	Unequal
Feeding	Impaired feeding	Can not feed	Multi organ failure . Myocardial ischemia . Acute tubular necrosis . DIC

Investigations: revise stabilization of sick infant (page 54: part 1)

Laboratory: needed to exclude multi organ dysfunction that may occur with hypoxia

- 1- Blood glucose and calcium
- 2- Blood urea and creatinine and electrolytes
- 3- Blood gas
- 4- Coagulation screen(DIC may occur due to hypoxia)

Imaging

- 1- EEG to detect abnormal background activity to confirm early encephalopathy
- 2- CT
- 3- Echo (cardiac dysfunction and persistent pulmonary hypertension may occur)

Treatment:

Proper stabilization to minimize neuronal damage: revise stabilization of sick infant (page 54: part 1): **basic life support** (discuss all) and **monitoring** (discuss all)

- 1- Treatment of seizures by anticonvulsants
 - . Phenobarbitone: the drug of choice
Loading: 10 -20 mg/Kg. Maintenance: 3-5 mg /kg / day).
 - . Phenytoin: Loading: 20mg/kg IV. Maintenance:-3-5 mg/kg/dayIV.
- 2- Treatment of hypotension by volume and inotropic support
- 3- Treatment of hypoglycemia(glucose 10%) and hypocalcemia (Cagluconate IV)
- 4- Recent trials show that : mild hypothermia(cooling to a rectal temperature of 33-34 by wrapping the infant in a cooling blanket reduce brain damage if started within 6 hours of birth

Rheumatology

Causes of joint swelling in children; Causes of arthritis or differential diagnosis of arthritis

- Septic arthritis
- Clinical presentation and treatment options of rheumatoid arthritis
- Criteria for diagnosis of systemic lupus

Presentations of immunodeficiency: when to suspect immunodeficiency

- 1- Recurrent (proven bacterial infections)
- 2- Severe infections(e.g. meningitis, Osteomyelitis, pneumonia)
- 3- Infections that present atypically, are unusually severe or chronic or fail regular treatment
- 4- Infections caused by an unexpected or opportunistic pathogen or child has been immunize against
- 5- Extensive candidiasis
- 6- Complications of vaccination(disseminated BCG)
- 7- Abscesses of internal organs: recurrent subcutaneous abscesses
- 8- Prolonged or recurrent diarrhea

Investigations to identify primary immune deficiency

1. Cellular (T cells)
Full blood count (lymphocyte count)
Lymphocyte subsets (CD3, CD4 (T helper) – CD8(cytotoxic)
2. Antibody :B cells
Immunoglobulins – B cells
3. Combined B and T cells
Specific genetic or molecular tests for severe combined immunodeficiency
4. Neutrophil : NBT : nitroblue tetrazolium test - tests for leukocyte adhesion - tests for chemotaxis(neutrophil mobility)
5. Complement factors assay

Prinatal medicine - Neonatal medicine

- Resuscitation

- . Steps of resuscitation of the newborn after delivery: A
- . Reasons for failure of resuscitation (failure to respond to resuscitation) : A
- . Hypoxic ischemic encephalopathy; case scenario : B ; الورقة او كتاب العملى

- Normal newborn

- . Routine examination of newborn infant :A: characteristics of normal newborn
- . Lesions in newborn infants which resolve spontaneously: A
- . Neonatal reflexes - Moro reflex – tonic neck reflex – : A

- Abnormalities of growth and gestational period

- . Clinical features of premature infant = maturational changes in appearance
- . Medical problems of preterm infant = complications: (very important)
- . Stabilizing the preterm or sick infant: A
- . Small for gestational age: B Or Large for gestational age : Complications of infant of diabetic mother(complications of maternal diabetes) A

- Other abnormalities

▪ Respiratory distress

- . Causes of respiratory distress IN FULL TERM INFANT: A (very important)

▪ Management of respiratory distress syndrome

- . Transient Tachypnea of the newborn: (B) or Meconium aspiration syndrome : B

▪ Seizures: causes of neonatal seizures: A - MANAGEMENT (A)

- . Neonatal apnea: B

▪ Hypothermia (cold injury) : A or Hypoglycemia: B

▪ Jaundice

- . Physiological jaundice: A – How to differentiate between physiological and pathological jaundice

- . Causes of neonatal jaundice

Physiological (unconjugated) – Pathological (unconjugated and conjugated)

- . Causes of neonatal jaundice according to the date of onset (very important)

Causes of persistent neonatal jaundice: very very important

- . Diagnostic investigations in unconjugated jaundice

▪ Kernicterus

- . Treatment of unconjugated jaundice or part of it (PHOTOTHERAPY OR EXCHANGE TRANSFUSION)

▪ Hemorrhagic disorders

Hemorrhagic disease of the newborn(A)(don't forget DD from other causes of neonatal bleeding)

Causes of neonatal bleeding. OR Differential diagnosis of neonatal bleeding(A)

▪ Causes of neonatal anemia or neonatal anemia : A

▪ Infections

- . Clinical presentations of congenital infections – investigations in neonatal infections

- . Neonatal septicemia: A ; REVISE SEPTICEMIA IN INFECTION ???

▪ Birth injuries? Intracranial hemorrhage

Nutrition

■ Normal nutrition

Nutritional requirement

- . Energy requirement - Protein requirement: (MCQ)
- . Why infants and children are more vulnerable to poor nutrition? (A)
- . Assessment of nutritional status (A)

Breast feeding

- . Factors that maintain milk flow.
- . Factors influencing milk secretion = factors that maintain milk flow +
- Hormonal factors e.g. Prolactin, thyroxin, oxytocin
- . Factors that increase (promote) breast milk production(A)
- . Advantages of breast feeding (A)
- . Anti-infective properties of breast milk = Protective mechanism in breast milk(A)
- . Disadvantages of breast feeding (A)
- . Why exclusive breast feeding in developing countries is lifesaving
- . Nutritional properties of breast milk = Composition of human milk (A)
- . Differences between colostrum and mature breast milk (very important: MCQ)

	Colostrum	Mature breast milk
pH	alkaline(higher)	Acidic
Specific gravity	1040-1060(higher)	1020- 1040
Protein content	8 gram%(higher)	1.3 gram%
Carbohydrate	5.5 gram%(lower)	6.7 gram%
Fat	3 gram%(lower)	3.6 gram%
Minerals	4 gram%(higher)	0.25 gram%
Amount	40 -60 ml/day	1-2 litre/day

- . Indicators of adequate breast feeding(A)
- . Drugs secreted in breast milk. (B)
- . Management of early minor problems with breast feeding.(A)

Artificial feeding

- . Indications of formula feeding -- Contraindication of breast feeding
- . Types of formulas (or one of them):

✎ Weaning or part of it : general rules of weaning (A)

■ Nutritional disorders

Marasmus: Clinical manifestations and complications of marasmus

Kwashiorkor:

- . Constant findings in kwashiorkor
- . Investigations: very important
- . Management or part of it (Nutritional management of protein energy malnutrition)

✎ Failure to thrive (A) very important

- . Causes of failure to thrive - . Investigations of failure to thrive : page 101

Rickets

- . Causes of rickets = types of rickets (vitamin D deficiency + other types) (A)
- . Clinical manifestations and complications of rickets .
- . Investigations: very important
- . Treatment of vitamin D deficiency - Hypervitaminosis D (very important)

Endocrinology

I- Hypothyroidism: A

- . Etiology of hypothyroidism: (types and causes of hypothyroidism)
- . Causes of primary hypothyroidism
- . Clinical manifestations of congenital hypothyroidism in neonates or early manifestations of congenital hypothyroidism
- . Late manifestations of congenital hypothyroidism
- . Acquired hypothyroidism: etiology- clinical manifestations- investigations
- . Diagnostic investigations of congenital hypothyroidism

II- Diabetes :A

- . Clinical presentations of diabetes mellitus
- . Differential diagnosis of diabetes mellitus
- . Complications of diabetes mellitus
- . Diabetic ketosis ✓✓✓ clinical presentations, investigations, DD, treatment
- . Treatment of diabetic ketosis
- . Treatment of ordinary cases of diabetes mellitus

Cardiology

Murmurs or Innocent murmurs : very important

- Causes of Cyanosis : causes of central cyanosis :A
- Investigations of cardiac diseases : very important for clinical cases (oral)

I- Rheumatic fever ; A

- . Diagnosis of rheumatic fever OR part of it (Carditis)
- . Treatment of rheumatic fever - Prevention of rheumatic fever

II- Congenital heart disease

- . Causes of congenital heart disease: B
- . Clinical presentations, investigations and treatment of : VSD: B
- . Clinical presentations, investigations and treatment of Coarctation of the aorta or PDA : or FALLOT (A) - TGA .
- . Treatment of hypercyanotic spells : very important
- . ASD - Pulmonary stenosis - aortic stenosis : c
- . Complications of congenital heart disease: A

III- Infective endocarditis: A . Management of infective endocarditis (very important)

Hematology

I- Anemia

- . Causes of anemia IN INFANTS AND CHILDREN: A
- . Clinical features AND COMPLICATIONS of thalassemia major
- . Laboratory diagnosis (investigations) of beta thalassemia.
- . Treatment of thalassemia major: A
- . Clinical features of sickle cell anemia : A
- . Complications of sickle cell anemia- Crises in sickle cell anemia and their management. A
- . Hereditary Spherocytosis: B
- . Glucose 6 phosphate dehydrogenase deficiency : A – causes of acute hemolytic anemia : very important
- . Iron deficiency anemia : Any part of it : A
- . Causes of Microcytic hypochromic anemia : A
- . Causes of anemia with splenomegaly

II- Purpura

- . Causes of PURPURA : A
- . Clinical picture of ITP. B
- . Laboratory investigations of thrombocytopenic purpura: A
- . Differential diagnosis of thrombocytopenic purpura: B
- . Treatment (therapy) of immune thrombocytopenia
- . Types of aplastic anemia.: BONE MARROW FAILURE SYNDROMES : B
- . Henoch Schonlein purpura: very important problem solving
- . Diagnosis of Acute leukemia : A

II- Hemophilia

- . Hemophilia : A any part of hemophilia : A
- . Von Willebrand disease : B

Respiratory

I- Respiratory tract infections

• Upper respiratory tract infection

1. Nasopharyngitis : clinical features and complications of nasopharyngitis): C
2. Otitis media: complications of otitis media: B
3. Tonsillitis : streptococcal pharyngitis):B

• Lower respiratory tract infections

1. Acute bronchitis : (part of cough causes)
2. Acute bronchiolitis
 - . Acute bronchiolitis : A
 - . Treatment of acute bronchiolitis
3. Pneumonias
 - . Causes and pathological types of pneumonia: MCQ
 - . Diagnosis of pneumonia. A
 - . Complications of pneumonia
 - . Treatment pneumonia
4. Suppurative lung disease
- 5- Tuberculosis
 - . Clinical manifestations of pulmonary TB : B
 - . Diagnostic investigations of pulmonary TB (do not forget tuberculin test):A
 - . Prevention of pulmonary tuberculosis
 - . Treatment of (chemotherapy of) tuberculosis : B

II- Bronchial asthma

- . Asthma triggers: B : mechanism of airway OBSTRUCTION IN asthma
- . Diagnosis of bronchial asthma : A ??
- . Clinical grading of acute asthma : clinical assessment of acute asthma: A
- . Assessment of the child with chronic asthma
- . Management of acute severe asthma
- . Preventive treatment of asthma: Long term control medications for asthma: B
- Wheezing: Causes of recurrent wheeze in infancy: A : very important
- Cough : causes of recurrent or persistent cough: A : very important

لا تمنع الخير عن اهله مادام في طاقة يدك ان تفعله

ENDING →

emergency! Nephrology

I- Nephrotic syndrome

- Clinical presentations and possible complications of nephrotic syndrome: A
- Laboratory investigations in nephrotic syndrome: A
- Management of minimal lesion nephrotic syndrome: A
- Causes of proteinuria: A
- Differential diagnosis of generalized edema

2- Glomerulonephritis

- Causes of glomerulonephritis: B
- Clinical presentations of acute post streptococcal glomerulonephritis: A
- Diagnostic investigations of acute post streptococcal glomerulonephritis: A
- Treatment of acute post streptococcal nephritis: A

3- Urinary tract infection VERY IMPORTANT

- Clinical presentations of urinary tract infections IN INFANTS AND CHILDREN: A
- Diagnostic investigations of urinary tract infections: A
- Investigations in recurrent urinary tract infections: A
- Treatment of urinary tract infections: A

4- Acute renal failure

- CAUSES of acute renal failure: A
- Treatment of acute renal failure: A

5- Chronic renal failure

- Etiology and diagnosis of chronic renal failure
- Management of chronic renal failure = treatment

6- Nocturnal enuresis: management

7- Clinical presentations of renal disease

- Causes of Hematuria: A VERY IMPORTANT
- Causes of hypertension: A
- Causes of palpable kidney

Unilateral:

- Renal tumors: wilms
- Renal vein thrombois
- Obstructed hydronephrosis
- Multicystic kidney
- Compensatory hypertrophy

Bilateral

- Polycystic kidney -
- Bilateral renal vein thrombosis

Normal urine output
= 0.5-1 cc/kg/hr

acute

Structural Developm
malform (40%)

BILAT. renal agenesis
Infantile polycystic kid.

OBSTRUCTIVE UROPATHY
(eg. stricture)

etiology
grades

comment on Hemolytic uremic syndrome

- Grade I Oliguria
- Grade II Anuria
- Grade III Established renal f.
- Comp. HF
- Arrhythm
- KNOW THE ELECTROLYTE IMBALANCE here!!
- GIT bleed. (stress ulcer)

1 Pre-renal failure

- (functional failure)
- Hypovolemia
- Hypotension
- Hypoxia
- ACUTE resp. failure
- Shock

2 Renal

- (organic/intrinsic)
- Tubules & ATN
- Glomeruli
- Vascul. Hem. Vasc.
- Acute or chr.
- Interstitial

3 Post-renal

- Obstructive
- Intentional nephritis (eg. NSAID)
- glomerulo nephritis

- * General manifest
- * Growth failure
- * Renal Rickets
- * Vomiting (d.t urea acc.)
- * Hematological
- * Polyuria & polydipsia

When to invest
GFR estim.
unelectrolytic
Growth retard.

Glomerular Systemic Chronic renal fail. Unknown (MPO & K)

Neurology

I- Clinical cases.

Clinical types of cerebral palsy

Hydrocephalus: types and clinical features???

II- Mental retardation

- . Causes of developmental delay (genetic – acquired)
- . Investigations in a case of developmental delay

III- Convulsions

- . Causes of convulsions
- . Criteria of typical febrile convulsions : very important
- . Epilepsy ??? : treatment of status epilepticus

IV- CNS infections

- . Etiology of bacterial meningitis
- . Diagnosis of bacterial meningitis: A
- . CSF changes in different types of meningitis: VERY IMPORTANT
- . Complications of meningitis (early and late): VERY IMPORTANT
- . Treatment of acute bacterial meningitis: A
- . Etiology of viral encephalitis – viral agents causing encephalitis
- . Diagnostic investigations of encephalitis

V- Neuromuscular disorders

- . Common causes of Floppy infant. A ★
- . Acute paralysis (causes – comment)
- . Guillain Bare syndrome → *Commonest Cause of Paralysis in ped*
- . Causes of progressive motor weakness?

Emergencies

I- Respiratory emergencies

- Stridor : differential diagnosis of acute upper airway obstruction: very important
Treatment of stridor
- Respiratory distress: . Causes of respiratory distress (A)
- Types and causes of respiratory failure (A)
- Oxygen therapy : complications of oxygen therapy (B)

2- Cardiac emergencies

- Acute congestive heart failure (A): causes or treatment
- Circulatory failure (shock); causes, grades or manifestations

4- Neurological emergency: coma causes - grades