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1. Autonomic disturbances are seen in?

a) Hyperthyroidism

b) Diabetes

c) Hyperaldosteronism

d) Hyperparathyroidism

Correct Answer - B

Diabetes REF: Harrison's Internal Medicine 17th edition chapter 370

Alcoholism

Amyloidosis

Autoimmune disease, such as Sjögren's syndrome or systemic lupus erythematosus (lupus), and autoimmune autonomic ganglionopathy[citation needed]

Craniocervical instability

Diabetes

Eaton-Lambert syndrome

Ehlers-Danlos syndrome

Guillain-Barré syndrome

2. A 7 year old girl is brought with complaints of generalized swelling of the body. Urinary examination reveals Grade 3 proteinuria and the presence of hyaline and fatty casts. She has no history of Hematuria. Which of the following statements about her condition is TRUE?

a) No IgG deposits or C3 deposition on Renal biopsy

b) Her C3 levels will be low

c) IgA Nephropathy is the likely diagnosis

d) Alport's syndrome is the likely diagnosis

Correct Answer - A

A young girl presenting with generalized edema, significant proteinuria, absence of hematuria and hyaline and fatty casts is most likely to be suffering from Minimal change disease (Lipoid nephrosis), the most common type of Nephrotic Syndrome.

In patients with Minimal change disease, C3 levels are normal and renal biopsy does not show any significant abnormalities except obliteration of epithelial foot processes.

Therefore, No IgG Deposits or C3 deposition on renal biopsy is the best answer.

Ref: Essential Pediatrics By O P Ghai, 6th Edition, Pages 446, 450

3. Anti Phospholipid Syndrome (APS) is associated with all of the following, except:

a) Pancytopenia

b) Recurrent abortions

c) Venous thrombosis

d) Pulmonary hypertension

Correct Answer - A

Venous thrombosis, recurrent abortions and pulmonary hypertension are recognized manifestations of Anti Phospholipid Syndrome (APS).

So the single best answer of choice by exclusion is pancytopenia.

Ref: Harrison's Principles of Internal Medicine, 16th Edition, Pages 1681-82, 1959, 1964, 1967; Davidson's Principles and Practice of Medicine, 19th Edition, Page 954

4. Which of the following condition is associated with normal anion gap metabolic acidosis?

a) Cholera

b) Starvation

c) Lactic acidosis

d) Ethylene glycol poisoning

Correct Answer - A

A normal anion gap metabolic acidosis is caused by the loss of bicarbonate with a reciprocal increase in chloride concentration.

It is also known as **hyperchloremic acidosis**. It most commonly results from abnormal gastrointestinal or renal losses of HCO_3^- .

Diarrhea is the most common cause of hyperchloremic metabolic acidosis.

Cholera is associated with massive diarrhea.

This diarrheal fluid consist of small bowel, biliary, and pancreatic fluids which contains 20–50 mEq/L of HCO_3^- . This loss of large volumes of fluids lead to hyperchloremic metabolic acidosis.

Ref: Harrison's Internal Medicine, 18th Edition, Chapter 47 ; Current Diagnosis & Treatment Emergency Medicine, 7th Edition, Chapter 44

5. "International prognostic index" for lymphoma includes the following prognostic factors, EXCEPT:

a) LDH

b) Stage of disease

c) Hemoglobin and Albumin

d) Number of extralymphatic sites involved

Correct Answer - C

Hemoglobin and Albumin are not included as prognostic factors in International prognostic index.

International prognostic index of lymphoma can predict the prognosis of lymphoma accurately.

It is widely used to categorize patients with intermediate-grade lymphoma into risk group.

Prognostic factors includes:

- Age of 60 or above
- Stage III or IV disease
- Performance status
- High level of lactate dehydrogenase (LDH)
- Involvement of 2 or more organs outside the lymph nodes

Patients with no risk factors or one risk factor have high complete response rates (80%) to standard immunochemotherapy.

Patients with two risk factors have a 70% complete response rate.

Patients with higher-risk disease have lower response rates and poor survival with standard treatment regimens, and alternative treatments are needed.

Ref: Current Medical Diagnosis and Treatment, 2012, Chapter 13; Johns Hopkins Medicine Patients Guide to Lymphoma By Aditya Bardia, Chapter 1

6. Which of the following is most frequently associated with the typical form of carcinoid syndrome ?

a) Foregut carcinoid

b) Midgut carcinoid

c) Hindgut carcinoid

d) None of the above

Correct Answer - B

Midgut carcinoids are argentaffin-positive and have a high serotonin content. They most frequently cause the **typical carcinoid syndrome** when they metastasize.

Reference:

Harrisons Principles of Internal Medicine, 18th Edition, Page 3058

7.

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The endotoxin of which of the following gram-negative bacteria DOES NOT play any part in the pathogenesis of the natural disease?

a) Escherichia coli

b) Klebsiella sp.

c) Vibrio cholerae

d) Pseudomonas aeruginosa

Correct Answer - C

Vibrio cholerae possess the lipopolysaccharide O antigen(LPS, endotoxin). It does not play any role in the pathogenesis of cholera but is responsible for the immunity induced by the killed vaccines. The watery diarrhea of cholera results from the action of a cholera toxin which is a potent protein enterotoxin produced by the organism in the small intestine.

It has 2 subunits A and B, Ganglioside GM1 serves as receptor for subunit B which in turn promotes the entry of subunit A into the cell.

Activation of subunit A1 cause increase in level of cAMP and results in prolonged hypersecretion of water and electrolytes.

Ref: Textbook of Microbiology By Ananthanarayan And Paniker page 311. [Jawetz, Melnick, & Adelberg's Medical Microbiology, 26e](#) chapter 17.

8. Positive hepatjugular reflux is found in all of the following conditions, EXCEPT:

a) Right heart failure

b) Pulmonic stenosis

c) Decreased after load

d) Tricuspid regurgitation

Correct Answer - C

Hepatojugular reflux results from an increase in preload and afterload to the right atrium and ventricle and not by a decrease in after load.

This reflux is elicited by applying pressure on the right upper abdominal quadrant under the costal margin for at least 10 to 15 seconds.

The **hepatojugular reflux** sign is present when the jugular venous column in the neck rises and persists as long as the abdominal pressure is continued. It can be elicited in severe right heart failure, constrictive pericarditis, and right ventricular infarction.

Tricuspid regurgitation and Pulmonic stenosis are both causes of right ventricular failure and may hence produce a positive hepatjugular reflux.

Ref: DeGowin's Diagnostic Examination, 9th Edition, Chapter 8; Pathophysiology of Disease: An Introduction to Clinical Medicine By Stephen J. McPhee, 6th Edition, Chapter 10

9. Radiological features of left ventricular heart failure are all, EXCEPT:

a) Kerley B lines

b) Cardiomegaly

c) Oligemic lung fields

d) Increased flow in upper lobe veins

Correct Answer - C

Classic signs of acute heart failure that can be seen on a chest x-ray of left ventricular failure are:

- Cardiomegaly
- Upper lobe blood diversion
- "Bat's wing" alveolar edema
- Pleural effusions

Echocardiography is the investigation of choice and can identify and quantify LVH and dysfunction (both systolic and diastolic) as well as examine causes of heart failure, such as valve abnormalities.

Oligemic lung fields seen in Pulmonary atresia, stenosis; Ebstein's anomaly.

Also Know:

Chest X ray Findings

- Boot shaped heart - TOF
- "3"like appearance - Coarctation of aorta.
- Figure of '8'- TAPVC(Total anomalous pulmonary venous connection)
- Bat wings appearance -Pulmonary edema.

Ref: O'Rourke R.A., Gilkeson R.C. (2011). Chapter 17. Cardiac Radiography. In V. Fuster, R.A. Walsh, R.A. Harrington (Eds), Hurst's The Heart, 13e.

10. The most commonly encountered bacterial pathogens in the lungs of patients with cystic fibrosis are:

a) E. coli and alpha Streptococcus

b) E. coli and Pseudomonas

c) Staphylococcus and Proteus

d) Staphylococcus and Pseudomonas

Correct Answer - D

For reasons that still are not understood, the most common bacterial organisms infecting the lungs of children with cystic fibrosis are **Staphylococcus aureus and Pseudomonas aeruginosa**. This has not changed much in the past two decades despite major changes in our antibiotic usage. Pseudomonas is particularly difficult to eradicate despite sensitivity in vitro to a variety of antibiotics.

11. All are included in the diagnostic criteria for clostridium difficile infection, EXCEPT:

a) 3 unformed stools per 24h for 2days

b) Toxin A or B detected in the stool

c) Pseudo membranes in colonoscopy

d) Fever

Correct Answer - D

ELISA that detects toxin A or B in stool is highly sensitive and specific for diagnosis of Clostridium difficile colitis.

The diagnosis of CDI is based on:

1. Diarrhea (3 unformed stools per 24 h for 2 days) with no other recognized cause

PLUS

2. **Toxin A or B** detected in the stool,

3. Toxin-producing C. difficile detected in the stool by polymerase chain reaction (PCR) or culture.

3. Pseudomembranes in the colon.

ALSO KNOW:

Endoscopy is a rapid diagnostic tool in seriously ill suspected patients

A negative test does not rule out infection

Ref: Harrison, Edition-18,page-1093.

12. All of the following are neurologic channelopathies except:

a) Episodic ataxia type 1

b) Spinocerebellar ataxia 1

c) Familial hemiplegic migraine

d) Hypokalemic periodic paralysis

Correct Answer - B

Spinocerebellar ataxia (SCA) type 1 is not a neurological channelopathy. **But SCA type 6 is a neurological channelopathy. Channelopathies** refers to a wide variety of neurologic diseases caused by dysfunction of ion channels in the excitable membranes. These are due to inherited mutations of genes encoding ion channels in muscle, neurons and glia. Severe myoclonic epilepsy of infancy, episodic ataxia type 1, 2, familial hemiplegic migraine, spinocerebellar ataxia type 6 are examples of neurologic channelopathy.

Ref: Harrison's Internal Medicine, 18th Edition, Chapter 373; A-Z of Neurological Practice: A Guide to Clinical Neurology By Andrew J. Larner, 2nd Edition, Page 122

13. All of the following are features of Devic's syndrome (neuromyelitis optica), except?

a) Separate attacks of acute optic neuritis and myelitis

b) Optic neuritis is either unilateral or bilateral

c) Brain MRI is typically normal

d) It has a fulminant demyelinating process and progress to death in 1-2 year

Correct Answer - D

Devic's disease is a variant of multiple sclerosis. **Fulminant demyelinating process is seen with another variant called Marburg's variant.**

14. Starting material for production of insulin from bacteria is:

a) Genomic DNA from beta pancreatic cells of human

b) Genomic DNA from lymphocytes of human

c) mRNA from beta pancreatic cells of human

d) mRNA from lymphocytes of human

Correct Answer - C

C i.e. mRNA from beta pancreatic cells of human

Starting material for production of insulin from bacterial cells (E.coli) using recombination DNA technology is *mRNA from beta pancreatic cells of human*.

15. The feature of JVP in cardiac tamponade is:

a) Prominent x descent with prominent 'y' descent

b) Prominent x descent with absent 'y' descent

c) Absent x descent with prominent 'y' descent

d) Absent x descent with absent 'y' descent

Correct Answer - B

B i.e. Prominent X descent with absent 'Y' descent

16. Absent P Wave is seen in:

a) Atrial Fibrillation

b) Cor-pulmonale

c) Mitral Stenosis

d) COPD

Correct Answer - A

Answer is A (Atrial Fibrillation)

P wave is typically absent in Atrial Fibrillation. COPD and Cor-Pulmonale are associated with tall p waves from Right Atrial Enlargement (P-Pulmonale) while Mitral Stenosis is typically associated with a wide and notched p wave from Left Atrial Enlargement (P-Mitrale)

Causes of Absent Wave:

- Atrial fibrillation (p' wave is absent or replaced by fibrillary T wave)
- Atrial flutter (p' wave is replaced by flutter wave, which shows saw-tooth appearance).
- SA block or sinus arrest
- Nodal rhythm (usually abnormal, small p wave).
- Ventricular ectopic and ventricular tachycardia.
- Supraventricular tachycardia (p' wave is hidden within QRS, due to tachycardia).
- Hyperkalemia.
- Idioventricular rhythm

Right Atrial Enlargement(RAE) is typically associated with tall P waves

P Pulmonale

(COPD and Cor-Pulmonale are associated with tall p waves from RAE)

Left Atrial enlargement(LAE) is typically

associated with wide P waves

P Mitrale

*(Mitral Stenosis is typically associated with a wide
and notched p wave from LAE)*

17. Which of the following physical signs is seen in a patient with severe aortic stenosis:

a) Opening snap

b) Diastolic rumble

c) Holosystolic murmur

d) Delayed peak of systolic murmur

Correct Answer - D

Answer is D (Delayed peak of systolic murmur)

The ejection systolic murmur starts after the ejection click reaches a peak in midsystole.

With increasing severity of aortic stenosis the peak gets delayed so that the maximum intensity of the murmur is closer to the end rather than being midsystolic.

The murmur of aortic stenosis (AS) is characteristically an ejection (mid) systolic murmur that commences shortly after the S₁, increases in intensity to reach a peak toward the middle of ejection, and ends just before aortic valve closure. It is characteristically low-pitched, rough and rasping in character, and loudest at the base of the heart, most commonly in the second right intercostal space. It is transmitted upward along the carotid arteries. Occasionally it is transmitted downward and to the apex, where it may be confused with the systolic murmur of mitral regurgitation (MR) (Gallavardin effect).

This may cause difference in Blood pressure recording in left and right arms.

18. A 50-year-old asymptomatic man with established aortic stenosis undergoes Exercise Stress testing according to Bruce Protocol. The stress test was terminated at 11 minutes due to development of fatigue and dyspnea. Regional pressure gradient was observed to be 60 mm Hg between the two sides of the aortic valve. What is the best management.

a) Angiogram

b) Aortic valve replacement

c) Aortic Ballooning

d) All

Correct Answer - B

Answer is B (Aortic valve replacement)

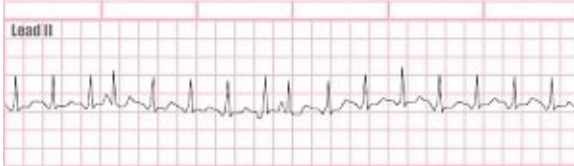
The patient in question has asymptomatic aortic stenosis but develops symptoms on exercise (abnormal/positive exercise test). Also the presence of mean pressure gradient of 60mm Hg put this patient into the category of 'Very Severe Aortic Stenosis' or 'Critical Aortic Stenosis'.

Optimal management of asymptomatic severe Aortic Stenosis continues to be a source of ongoing clinical controversy. Surgical Aortic Valve Replacement and Watchfull waiting with frequent reassessments (observation), both continue to be legitimate though

debatable treatment options.

Since the patient in question has 'Very Severe AS' and 'Abnormal Stress Testing' he should be considered for surgical intervention in the form of Aortic Valve Replacement (A VR).

50-year-old patient with Asymptomatic Severe Aortic Stenosis



Classification of Aortic Valve Stenosis Severity

Severity	Valve Area (cm²)	Maximum Aortic Velocity (m/sec)	Mean Pressure Gradient (mm Hg)
Mild	1.5 – 2.0	2.5 – 3.0	<25
Moderate	1.0 –1.5	3.0-4.0	25-40
Severe	0.6-1.0	>4.0	>40
Critical (Extremely Severe)	<0.6	>5.0	>50-60

19. Which of the following statements about Atherosclerosis is true:

- a) Intake of Unsaturated Fatty Acids is associated with decreased risk
- b) Extent of lesions in veins is similar as that in arteries
- c) Thoracic Aorta is more commonly involved than abdominal aorta
- d) Hypercholesterolemia alone does not increase the risk of atherosclerosis per se

Correct Answer - A

Answer is A (Intake of Unsaturated Fatty Acids is associated with decreased risk)

The maximal benefit is observed with Omega 3 Poly-unsaturated Fatty Acids, however Mono-unsaturated Fatty Acids also have consistent anti-atherosclerotic benefits and both Poly-unsaturated Fatty Acids (PUFA) and Monounsaturated Fatty Acids (MUFA) are considered Cardioprotective Fatty Acids.

Hypercholesterolemia alone may increase the risk of Atherosclerosis
'Hyperlipidemia and more specifically hypercholesterolemia is a major risk factor for atherosclerosis. Even in the absence of other factors, hypercholesterolemia is sufficient to stimulate lesion development'. - Robbins 8th/497 Extent of Atherosclerosis is more severe in arteries than in veins

Atherosclerosis is always severe in areas where pressure and velocity are high (as in arteries) in contrast to areas where pressure and velocity are low (as in veins).

'Overall atherosclerosis is more severe in high-pressure arteries than in pulmonary arteries with lower blood pressure. It is least

severe in veins where pressure and velocity are lowest' - 'Pan - Vascular Medicine' by Topol (2002)/90 Abdominal Aorta is more commonly involved than Thoracic Aorta

'Abdominal Aorta is more commonly involved than Thoracic Aorta. Within the abdominal aorta lesions tend to be more prominent around the ostia' - 'Med Essentials' (Kaplan Publishing) 2007/249

'In the systemic circulation severity is accentuated in the abdominal aorta and large arteries of the lower limb where pulse wave reflection and summation effect elevate the pulse and systolic pressures. The disease is more severe in large rather than small vessels indicating the importance of mural tension and Reynolds number both of which are proportional to radius increasing the likelihood and severity of effects of blood flow disturbance at arterial forks, junctions and curvatures'.- 'Pan Vascular Medicine'

20. All of the following statements about Universal Definition of Myocardial Infarction are true, Except:

a) Sudden, unexpected Cardiac death with symptoms of Ischemia.

b) Elevation of cardiac biomarkers with new regional wall motion abnormality

c) Three times increase in Troponin levels after Percutaneous Coronary Intervention (PCI)

d) Three times increase in Troponin levels after Coronary Artery Bypass Grafting (CABG)

Correct Answer - D

Answer is D (Three times increase in Troponin levels after Coronary Artery Bypass Grafting (CABG)

Myocardial Infarction associated with CABG is defined by an increase in cardiac biomarkers to more than 5 times normal (> 5 times above the 99th percentile).

Universal Definition of Myocardial infarction

Type 1: Spontaneous myocardial infarction

Spontaneous myocardial infarction related to atherosclerotic plaque rupture, ulceration, fissuring, erosion, or dissection with resulting intraluminal thrombus in one or more of the coronary arteries leading to decreased myocardial blood flow or distal platelet emboli with ensuing myocyte necrosis. The patient may have underlying severe CAD but on occasion non-obstructive or no CAD.

Type 2: Myocardial infarction secondary to an ischemic imbalance

In instances of myocardial injury with necrosis where a condition other than CAD contributes to an imbalance between myocardial oxygen supply and/or demand, e.g. coronary endothelial dysfunction, coronary artery spasm, coronary embolism, tachy-/brady-arrhythmias, anemia, respiratory failure, hypotension, and hypertension with or without LVH.

Type 3: Myocardial infarction resulting in death when biomarker values are unavailable

Cardiac death with symptoms suggestive of myocardial ischemia and presumed new ischemic ECG changes or new LBBB, but death occurring before blood samples could be obtained, before cardiac biomarker could rise, or in rare cases cardiac biomarkers were not collected.

Type 4a: Myocardial infarction related to percutaneous coronary intervention (PCI)

Myocardial infarction associated with PCI is arbitrarily defined by elevation of cTn values $>5 \times 99^{\text{th}}$ percentile URL in patients with normal baseline values ($\leq 99^{\text{th}}$ percentile URL) or a rise of cTn values $>20\%$ if the baseline values are elevated and are stable or falling. In addition, either (i) symptoms suggestive of myocardial ischemia, or (ii) new ischemic ECG changes or new LBBB, or (iii) angiographic loss of patency of a major coronary artery or a side branch or persistent slow- or no-flow or embolization, or (iv) imaging demonstration of new loss of viable myocardium or new regional wall motion abnormality are required.

Type 4b: Myocardial infarction related to stent thrombosis

Myocardial infarction associated with stent thrombosis is detected by coronary angiography or autopsy in the setting of myocardial ischemia and with a rise and/or fall of cardiac biomarkers values with at least one value above the 99^{th} percentile URL.

Type 5: Myocardial infarction related to coronary artery bypass grafting (CABG)

Myocardial infarction associated with CABG is arbitrarily defined by elevation of cardiac biomarker values $>10 \times 99^{\text{th}}$ percentile URL in patients with normal baseline cTn values ($\leq 99^{\text{th}}$ percentile URL). In addition, either (i) new pathological Q waves or new LBBB, or (ii) angiographic documented new graft or new native coronary artery occlusion, or (iii) imaging evidence of new loss of viable myocardium or new regional wall motion abnormality.

21. The 2010 AHA Guidelines for CPR during Basic Life Support for neonates Recommends:

a) Airway – Breathing – Compression (A-B-C)

b) Compression – Breathing- Airway (C-B-A)

c) Compression- Airway – Breathing (C-A-B)

d) Breathing – Airway – Compression (B –A-C)

Correct Answer - A

Answer is A (Airway – Breathing – Compression (A-B-C))

The A-B-C (Airway – Breathing – Compression) sequence is still retained for neonates since cardiac arrests in neonates are nearly always from asphyxia.

The major Highlight of the 2010 AHA Guidelines for CPR is the Change from "A-B-C" to "C-A-B". The newest development in the 2010 AHA Guidelines for CPR and ECC is a change in the basic life support (BLS) sequence of steps from "A-B-C" (Airway, Breathing, Chest compressions) to "C-A-B" (Chest compressions, Airway, Breathing) for adults and paediatric patients (children and infants, excluding new-borns). *However the A-B-C (Airway – Breathing – Compression) sequence is still retained for neonates since cardiac arrests in neonates are nearly always from asphyxia.*

Adult Basic Life Support (BLS) Algorithm

Safety

Make sure you, the victim and any bystanders are
• safe

Response

• Check the victim for a response

Airway

4 Open the airway

- Breathing** **Look, listen and feel for normal breathing for no more than 10 seconds°**
- Dial 999** , Call an ambulance (999)
- Send For AED** • Send someone to get an AED if available
- Circulation** • **Start chest compressions**
 - Place **heel of one hand in lower half of victim's sternum** Q
 - **Place heel of your other hand on top of first hand°**
 - Interlock the fingers of your hands & ensure that pressure is not applied over the victim's ribs
 - Keep your arms straight; Position your shoulders vertically above the victim's chest
 - **Press down on sternum to a depth of 5-6 cm** Q
 - After each compression, release all the pressure on chest without losing contact between your hands & sternum
 - **Repeat at a rate of 100-120/min°**
- Give Rescue Breaths** **After 30 compressions open the airway again**
 - **using head tilt & chin lift & give 2 rescue breaths°**
 - **Do not interrupt compressions by more than 10 seconds to deliver two breaths.** Then return your hands without delay to correct position on sternum & give a further 30 chest compressions Q
 - **Continue with chest compressions & rescue breaths in a ratio of 30:2°**
 - If you are untrained or unable to do rescue breaths, give chest compression only CPR (i.e. continuous compressions at a rate of at least 100-120/min) Q
- If an AED Arrives** • **Switch on the AED & follow the spoken/visual directions**
 - Ensure that nobody is touching the victim while AED is analyzing the rhythm
 - **If a shock is indicated, deliver shock & ensure that nobody is touching the victim**

- **Immediately restart CPR at a ratio of 30:2°**
- **If no shock is indicated, continue CPR°**

Continue
CPR

- Do not interrupt resuscitation until:
 - A health professional tells you to stop ; You become exhausted
 - The victim is definitely waking up, moving, opening eyes and breathing normally
 - It is rare for CPR alone to restart the heart. Unless you are certain the person has recovered continue CPR

Recovery
Position

If you are certain the victim is breathing normally but is still unresponsive, place in the recovery position°

22. All of the following are major criteria in the diagnosis of Acute Rheumatic Fever, Except:

a) Migratory Polyarthralgia

b) Subcutaneous Nodules

c) Chorea

d) Carditis

Correct Answer - A

Answer is A (Migratory Polyarthralgia)

Major Joint involvement criteria in Acute Rheumatic Fever are Migratory Polyarthrititis (Not Polyarthralgia). The typical polyarthrititis is migratory moving from one joint to another over a period of hours.

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23. Diagnostic feature in rheumatic heart disease is :

a) Aschoff's nodule

b) Mc Callman patch

c) Adeno Carcinoma

d) Alveolar cell Carcinoma

Correct Answer - A

The answer is A (Aschoff nodule)

"Aschoffs body is pathognomic of Rheumatic fever" - Robbins

Aschoff s bodies are focal inflammatory lesions, that may be found in any of the three layers of the heart Pericardium, Myocardium and Endocardium, during acute Rheumatic fever.

Aschoff bodies consist of foci of swollen eosinophilic collagen surrounded by

- Lymphocytes (primarily T cells)
- Occasional plasma cells
- Aschoff giant cells (macrophages of rheumatic fever)
- Antitschkow cells

(Antischkow cells are modified macrophages with abundant cytoplasm and central round to ovoid nuclei in which the chromatin is disposed of in the central, slender wavy ribbon like the pattern — caterpillar cells)

24. A 45 year old male had severe chest pain and was admitted to the hospital with a diagnosis of acute Myocardial Infarction. Four days later he died and autopsy showed Transmural coagulative necrosis. Which of the following microscopic features will be seen on further examination

a) Fibroblasts and collagen

b) Granulation tissue

c) Neutrophilic infiltration surrounding coagulative necrosis

d) Granulomatous inflammation.

Correct Answer - C

Answer is C (Neutrophilic infiltration Surrounding Coagulative necrosis)

The patient in question succumbed to Myocardial infarction after four days of its onset. Characteristic morphological changes evolve in the heart of patients with MI depend on the duration since the attack. After four days the microscopic examination is most likely to reveal large number of PMNs (Neutrophils) at borders of coagulative necrosis

Granulation tissue first appears about 6 – 7 days after MI

Collagenous tissue first appears about 10 days after MI

Evolution of MI (Table from 'Hurst')

Time of Gross

Histologic

Occlusion

12 h	No change / pallor	Wavy fibers
24 – 48 h	Pallor – yellow, soft	Hypereosinophilic fibers, PMNs at borders
3 – 5 days	Yellow center, hyperemic borders	<i>Large number of PMNs at border, coagulation necrosis loss of nuclei</i>
6 – 10 days	Yellow, depressed central infarct, tanred margins	<i>Mummified fibers in center, macrophage phagocytosis + granulation tissue at borders</i>
10 – 14 days	Gray red borders, infiltrating central tan? yellow infarct if large	<i>Marked granulation tissue, collagen deposition,</i>
2 – 8 weeks	Gelatinuous to gray white scar, greater healing at border zone	Collagen deposition with prominent large capillaries.

Evolution of MI (Table from Robbins)

Time	Gross Features Microscope	Light
Reversible Injury		
0 to 1/2 hr	None	None
Irreversible Injury		
1/2 - 4 hr	None	Usually none; variable waviness of fibres at border
4-12 hr	Occasionally dark mottling	Beginning coagulation necrosis; edema; hemorrhage
12-24 hr	Dark mottling	Ongoing coagulation necrosis; pyknosis of nuclei; myocyte hypereosinophilia; marginal contraction band necrosis; beginning neutrophilic infiltrate
1-3 days	Mottling with yellow-tan infarct center	<i>Coagulation necrosis, with loss of nuclei and striations; interstitial infiltrate of neutrophils</i>
3-7 days	Hyperemic border; central yellow-tan softening	Beginning disintegration of dead myofibers, with dying neutrophils; early phagocytosis of dead cells by macrophages at infarct border
7-10	Maximally	Well-developed

days	yellow tan and soft, with depressed red-tan margins	phagocytosis of dead cells; <i>early formation of fibrovascular granulation tissue at margins</i>
10-14 days	Red-gray depressed infarct borders	Well-established granulation tissue with new blood vessels and collagen deposition
2-8 wks	Gray-white scar, progressive from border toward core of infarct	Increased collagen deposition, with decreased cellularity
> 2 mo	Scarring complete	Dense collagen scar

25. Transesophageal echocardiogram (TEE) is preferred to Trans-thoracic echocardiogram (TTE) in:

- a) Evaluation of Pericardial diseases
- b) Evaluation of Tricuspid wall vegetations
- c) Evaluation of Left Ventricular Apical Thrombi
- d) Evaluation of Left Atrial Appendage Thrombi

Correct Answer - D

Answer is D (Evaluation of Left Atrial Appendage Thrombi)

Trans-esophageal echocardiogram (TEE) is preferred to Trans-thoracic echocardiogram (TTE) for smaller, atrial and posterior masses such as the Left Atrial Appendage Thrombi. TTE is the standard test for the noninvasive evaluation of pericardial disease. Identification of vegetations on tricuspid valves is no better overall by TEE than by TTE (as the tricuspid valve is equidistant from the chest wall and the esophagus). Very anterior masses, Such as left ventricular apical thrombi, are equally well and, far more easily imaged by TTE.

Trans-esophageal echocardiogram (TEE) vs. Trans-thoracic echocardiogram (TTE)

Trans-esophageal Echocardiography (TEE) is generally more sensitive than Trans-thoracic Echocardiography (TTE) and provides a unique window for high resolution imaging of posterior structures of the heart particularly the left atrium, mitral valve and aorta. TEE is however an invasive and more expensive procedure and hence its indications must be weighed against these factors and TTE remains the initial investigation of choice for most situations. However if a high clinical index of suspicion remains after a negative or poor

High clinical index of suspicion remains after a negative or non-diagnostic transthoracic study, Trans-esophageal echocardiography should be considered.

Situations in which Trans-esophageal echocardiography should be performed as the initial test of choice include

1. Those patients in whom image quality on chest wall imaging is unacceptable.
2. Those with prosthetic valves, and
3. Those in whom complications such as abscess formation are suspected on clinical rounds.

26. Chronic Lymphocytic Leukemia (CLL) is associated with:

- a) Individuals > 50 years of age
- b) Mature small lymphocytes in peripheral smear
- c) Hepatosplenomegaly and lymphadenopathy
- d) All of the above

Correct Answer - D

Answer is D (All of the above)

Cell of origin of chronic lymphocytic leukemia (CLL)/small lymphocytic lymphoma (SLL) is naive B-cells in inter-follicular zones. "DNA sequencing has revealed that the Ig genes of some CLL/SLL are somatically hypermutated, whereas others are not, suggesting that the cell of origin may be either a postgerminal center memory B cell or a naive B cell."

Essentials in Hematology and clinical pathology' by Naik, Ras, Gupta (JP) 2012/202, 205, 204

CLL is commonly seen in individuals > 50 years (median age is about 65 year) and are typically characterized by the presence of increased number of mature small lymphocytes **in** the peripheral smear. Hepatosplenomegaly and lymphadenopathy may be seen.

'The physical examination may be unremarkable but common findings are hepatosplenomegaly and enlarged non tender, firm mobile lymph nodes in the cervical axillary and inguinal areas'

Diagnostic criteria of CLL are (Wintrobe's Atlas of Clinical Hematology)

- .. An absolute Lymphocytosis > 5x 10⁹/L
- 2. > 30% Lymphocytosis in a normocellular or hypercellular bone

marrow

- 3. Monoclonal B cells with low levels of surface immunoglobulins and CD5 positivity

27. A patient has normal PT and Platelet Count. The aPTT is increased and factor VIII levels are observed to be 60 IUI (60%). There is no associated history of bleeding even after a surgical procedure. The most likely diagnosis is:

a) Factor IX deficiency

b) Factor VIII inhibitors

c) Lupus anticoagulant

d) Thalassemia

Correct Answer - C

Answer is C (Lupus Anticoagulant)

Isolated prolongation of aPTT with no clinical history of bleeding suggests the presence of Lupus anticoagulant or deficiency of contact factors (Factor XII, Prekallikrein or HMWK)

28. All of the following are Preleukemic conditions, Except:

a) Paroxysmal Nocturnal Haemoglobinuria (PNH)

b) Paroxysmal Cold Haemoglobinuria (PCH)

c) Myelodysplasia

d) Aplastic anemia

Correct Answer - B

Answer is B (Paroxysmal Cold Haemoglobinuria (PCH))

Paroxysmal Cold Hemoglobinuria (PCH) is a benign self-limiting autoimmune hemolytic anemia. PCH does not undergo leukemic transformation and is hence not considered a Preleukemic condition. Recovery is the rule in Paroxysmal Cold Hemoglobinuria.

Paroxysmal Nocturnal Haemoglobinuria may be considered a Preleukemic condition

PNH may evolve into Aplastic anemia and PNH may manifest itself in patients who previously have Aplastic Anemia. Rarely (estimated 1-2% (lan cases) PNH may terminate in Acute Myeloid Leukemia'. – Harrison 18th/883

Myelodysplasia (Myelodysplastic Syndrome) is a Preleukemic condition

Myelodysplasia is a clonal hematopoietic stem cell disorder leading to impaired cell proliferation and differentiation. Cytogenetic abnormalities are found in approximately one half of patients and some of the same specific lesions are also seen in frank leukemia. The type and number of cytogenetic abnormalities strongly correlate with the probability of leukemic transformation and survival'

Aplastic Anemia may be considered a Preleukemic condition

'Recent studies have shown that long term survivors of acquired

aplastic anemia may be at high risk of subsequent malignant diseases or late clonal hematological diseases often years after successful immunosuppressive therapy. One Hypothesis has postulated that aplastic anemia is a Preleukemic condition'.

29. A d-xylose test was requested on a patient with history of long standing steatorrhea '5' hour urine sample showed <4.0 gm excretion after giving 25 gm of d-xylose. The most likely diagnosis is :

a) Chronic Pancreatitis

b) Bacterial overgrowth syndrome

c) Ileal disease

d) Celiac sprue

Correct Answer - D

Answer is D (Celiac sprue)

*A Positive d-xylose test suggests a diagnosis of celiac disease
Decreased urinary excretion of d- xylose (<5.0 gm) 5 hours after
administration of 25 gm D- xylose (positive test) suggests
malabsorption due to intestinal mucosal disease in the proximal
small bowel (duodenum and jejunum).*

*Celiac disease is a characteristic cause for positive d-xylose test
and the single best answer amongst the options provided*

*Modestly abnormal d-xylose test may also be seen in cases of
bacterial overgrowth syndrome, however patients with bacterial
overgrowth syndrome may also have normal d-xylose excretion, and
hence this is not considered as the most likely diagnosis*

D-Xylose Test		Schilling Test	Duodenal Mucosal Biopsy
Chronic pancreatitis	Normal	50% abnormal; if abnormal, normal with	Normal

		pancreatic enzymes	
Bacterial overgrowth syndrome	Normal or only modestly abnormal	Often abnormal; if abnormal, normal after antibiotics	Usually normal
Ileal disease	Normal	Abnormal	Normal
Celiac sprue	Decreased	Normal	Abnormal: probably "flat"
Intestinal lymphangiectasia	Normal	Normal	Abnormal: "dilated lymphatics"

30. Based on Epidemiological studies, which of the following has been found to be most protective against Carcinoma Colon :

a) High fiber diet

b) Low fat diet

c) Low selenium diet

d) Low protein diet

Correct Answer - A

Answer is A (High fiber diet):

Epidemiologic, case control and animal studies suggest that dietary fibers are protective against the development of colon cancer

Fat is primarily related as a 'promoting' agent such that high fat in diet is believed to promote carcinogenesis. Low Fat has not been shown to have a 'protective' role in carcinogenesis although it may reduce the incidence of colonic carcinoma indirectly by reducing a 'promoting effect'.

Low selenium is 'possibly related' as a promoting agent

Low Protein has not been mentioned in relation to carcinogenesis in the colon.

31. Which of the following is not a prognostic factor for Acute Pancreatitis

a) Serum Amylase

b) Serum Calcium

c) Serum Glucose

d) Serum AST

Correct Answer - A

Answer is A (Serum Amylase) :

Serum Amylase does not form any criteria for prognosis in Acute Pancreatitis.

Although elevated serum amylase level is important for establishing diagnosis of acute pancreatitis, it plays no role in predicting prognosis or severity.

"There appears to be no definite correlation between severity of pancreatitis and the degree of serum amylase elevation. After 48 to 72 hours, even with continuing evidence of pancreatitis, total serum amylase levels tend to return to normal." - Harrison

Hyperglycemia (Glucose), Hypocalcemia (Calcium) and elevated serum AST are all poor prognostic factors in accordance with Ranson's criteria as elaborated in the previous question.

32. Which is not true about alcoholic hepatitis

:

a) Gamma glutamyl transferase is raised

b) SGPT is raised > SGOT

c) SGOT is raised > SGPT

d) Alkaline phosphatase is raised

Correct Answer - B

Answer is B

SGOT/SGPT ratio greater than 2 is highly suggestive of alcoholic hepatitis and cirrhosis.

AST is synonymous with SGOT & ALT is synonymous with SGPT

In general AST and ALT levels rise parallel to each other. In alcoholic liver disease the AST rises out of proportion to ALT such that the ratio of AST and ALT may become greater than 2:

Stigmata of Alcoholic hepatitis / cirrhosis that aid in diagnosis :

1. Bilateral enlarged parotids^Q.
2. Gynaecomastia^Q
3. Testicular atrophy with loss of body hair^Q
4. Wasting of muscle mass^Q
5. Dupuytren's contracture^Q

AST (SGOT) out of proportion to ALT (SGPT) seen in^Q

1. Alcoholic hepatitis^Q
2. Fatty liver in pregnancy^Q

Gamma Glutamyl transferase levels correlate with levels of Alkaline phosphatase and are a sensitive indicator of biliary tract disease — obstructive jaundice. *It is not an indicator of alcoholic liver disease.*

Remember :GGT is the most sensitive indicator of biliary tract disease

33. A boy is suffering from acute pyelonephritis. The most specific investigation is

a) Histopathological examination

b) Leucocyte esterase test

c) Nitrite test

d) Bacteria in gram stain

Correct Answer - A

The answer is A

- Acute pyelonephritis is a bacterial infection causing inflammation of the kidneys and is one of the most common diseases of the kidney.
- Pyelonephritis occurs as a complication of an ascending urinary tract infection (UTI) which spreads from the bladder to the kidneys and their collecting systems.
- Symptoms usually include fever, flank pain, nausea, vomiting, burning on urination, increased frequency, and urgency. The 2 most common symptoms are usually fever and flank pain.
- *E. coli* is the most common bacteria causing acute pyelonephritis due to its unique ability to adhere to and colonize the urinary tract and kidneys.
- Histopathology will usually reveal necrosis or putrid abscess formation within the renal parenchyma. The renal tissues are infiltrated with neutrophils, macrophages and plasma cells. However, architecture is not completely disorganized.
- The presence of white blood cells within or upon casts strongly suggests pyelonephritis, direct infection of the kidney. They may also be seen in inflammatory states, such as acute allergic interstitial

nephritis, nephrotic syndrome, or post-streptococcal acute glomerulonephritis.

34. In Lupus nephritis, characteristic kidney lesion is:

a) Mesangial proliferation

b) Tubular fibrin deposits

c) Wire loop lesions

d) IgG deposits

Correct Answer - C

Answer is C (Wire loop lesions):

Wire loop lesions are characteristic of Lupus nephritis.

Wire loop lesions:

- Wire loop lesions represent local PAS – Positive thickening of glomerular capillary walls and are characteristically seen in Lupus Nephritis (SLE)
- These lesions result from subendothelial deposits between endothelium and basement membrane.
- When extensive and confluent, these subendothelial deposits create a homogenous thickening of the capillary wall which can be seen in light microscopy as 'Wire loop lesion'
- Wire loop lesions are most characteristic of Lupus Nephritis Class IV or Diffuse Lupus Nephritis These may however also be seen in Class III (Focal Lupus Nephritis) and Class V (membranous) Lupus Nephritis.

35. Static compliance is decreased in all of the following except:

a) ARDS

b) Pulmonary edema

c) Interstitial fibrosis

d) Emphysema

Correct Answer - D

Answer is D (Emphysema):

Emphysema is associated with an increased static compliance but decreased dynamic compliance.

The effect of emphysema on compliance is unique in that it results in an increase in static compliance but a decrease in dynamic compliance.

Static compliance increases due to destruction of elastic tissues in the alveolar walls. The reduction in elastic tissue makes it easier for the lung to expand in response to distending pressure, However the loss of elastic tissue in the walls of smaller airways makes them vulnerable to dynamic airway compression. This increases the airway resistance with consequent decrease in dynamic compliance - 'Principles of Medical physiology' by Sircar 1" (2008)/320

Common causes of Rhonchi include:

- Bronchial Asthma
- COPD — Chronic bronchitis, Bronchiectasis, Emphysema
- Cardiac Asthma (Pulmonary Edema)
- Foreign body (Fixed monomorphic rhonchi - localized)
- Tumor (Fixed monomorphhic rhonchi — localized.)

Static Compliance

- Static compliance, indicates compliance when the lungs are at rest

- Static compliance values reflect true lung compliance alone
- Static compliance reflects elasticity of the lung and is not affected by airway resistance because there is no flow

Reduced static compliance indicates rigid lung tissue

- Interstitial fibrosis (Fibrosing alveolitis)
- Atelectasis
- Pulmonary edema
- Pneumonia
- ARDS

Dynamic Compliance

- Dynamic compliance indicates compliance when air flow is occurring
- Dynamic compliance values reflect lung compliance along with airway resistance
- Dynamic compliance is affected by both elasticity of the lung and airway resistance

Reduced Dynamic compliance (without change in static compliance) indicates increased airway resistance

- Obstruction
- Bronchospasm (Allergic Asthma)
- Collapse of small airways etc

Dynamic Compliance

- Dynamic compliance indicates compliance when air flow is occurring
- Dynamic compliance values reflect lung compliance along with airway resistance
- Dynamic compliance is affected by both elasticity of the lung and airway resistance

Reduced Dynamic compliance (without change in static compliance) indicates increased airway resistance

- Obstruction
- Bronchospasm (Allergic Asthma)
- Collapse of small airways etc
- Reduced static compliance is usually also associated with a decreased dynamic compliance due to associated airway resistance

Increased static compliance indicates easily expandible lung

- Emphysema
- Emphysema is associated with an increased static compliance but decreased dynamic compliance due to associated increased airway

resistance.

Reduced Dynamic compliance with reduced static compliance

- Most conditions where static compliance is reduced are also associated with reduced dynamic compliance due to associated increase in airway resistance.

36. Treatment of choice for Kawasaki Disease is:

a) IV Immunoglobulins

b) Steroids

c) Dapsone

d) Methotrexate

Correct Answer - A

Answer is A (IV Immunoglobulins):

The treatment of choice in Kawasaki disease is intravenous immunoglobulins

37. Which of the following is the most specific test for Rheumatoid Arthritis

a) Anti- ccp antibody

b) Anti IgM antibody

c) Anti IgA antibody

d) Anti IgG antibody

Correct Answer - A

Answer is A (Anti - cep Antibody)

'Anti CCP antibodies are the most specific blood test fir rheumatoid arthritis (specificity –95%)' - CMDT 09/727

Anti-cyclic citrullinated peptide (anti-CCP) antibody testing is particularly useful in the diagnosis of rheumatoid arthritis, with high specificity, presence early in the disease process, and ability to identify patients who are likely to have severe disease and irreversible damage. Anti-CCP antibodies have not been found at a significant frequency in other diseases to date, and are more specific than rheumatoid factor for detecting rheumatoid arthritis.

- Oxford Journal of Medicine

38. Diabetes control is best monitored by:

a) Serum glucose

b) Post prandial blood glucose

c) HbA1C

d) HbA2C

Correct Answer - C

Answer is C (HbA1c):

Measurement of glycated hemoglobin (HbA1C) is the standard method for assessing long term glycemic control.

*The gold standard **indicator** of **glycemic control** in patients with **diabetes** mellitus is hemoglobin A1c (HbA1c)*

Glycated hemoglobin (HbA1C) should be measured in all individual with DM as part of their comprehensive diabetic care.

**39. All are causes of hyperprolactinemia,
*except***

a) Bromocriptine

b) Phenothiazine

c) Methyldopa

d) Metoclopramide

Correct Answer - A

Answer is A (Bromocriptine):

Bromocriptine is a potent dopamine agonist. It decreases prolactin release from pituitary by activating inhibitory dopaminergic receptors on lactotrope cells, a strong anti-galactopoietics action.

All others are known to cause increased Prolactin.

40. All of the following statements about SIADH are true except:

a) Serum sodium is low, typically < 135 meq/l

b) Urinary sodium excretion is low / normal

c) Water loading test may be used

d) Vaptans are new FDA approved agents for treatment of SIADH

Correct Answer - B

Answer is B (Urinary sodium excretion is low / normal):

SIADH is typically characterized by high urinary sodium (Increased rate of excretion of sodium).

Syndrome of Inappropriate ADH Secretion (SIADH) is associated with increased secretion of vasopressin (ADH), which leads to increased absorption of water producing *dilutional hyponatremia* (serum sodium typically < 135 meq/l) along with concentrated or hyperosmolar urine. Excessive retention of water stimulates compensatory mechanisms that enhance *Watriuresis*'.

Natriuresis results in increased urinary sodium excretion rate (increased urinary sodium concentration) and is believed to compensate for increased volume from inappropriate ADH secretion preventing a state of clinical hypervolemia, hypertension or edema. SIADH is associated low serum sodium levels (

Cardinal features of SIADH include:

- *Hyponatremia (dilutional hyponatremia with $\text{Na}^+ < 135$ mmol/l)*
- *Decreased plasma osmolality (increased urine osmolality > 150 mOsm).*
- *High Urine sodium (over 20 meq/4)*
- *Low Blood urea Nitrogen < 10 mg/L*
- *Hypouricemia (*

- *Clinical Euvolemia*
 - Absence of signs of hypervolemia (edema, ascitis)
 - Absence of signs of hypovolemia (orthostatic hypotension, tachycardia, features of dehydration)
- *Absence of cardiac, liver or renal disease*
- *Normal thyroid and adrenal function*
- *A high BUN suggests a volume contracted state and excludes a diagnosis of SIADH.*

Water loading test may be used to help diagnosis of SIADH
Water loading test is recognized as a 'supplemental criteria' in establishing a diagnosis of SIADH.

The 'Water Loading Test' is of value when there is uncertainty regarding the etiology of modest degrees hypo-osmolality in euvolemic patients but it does not add useful information if the plasma osmolality is < 275 mOsm/kg H₂O

Test Objective / Principle	Abnormal Water Loading Test Criteria
Fixed quantity of water is given to a patient and the amount of urine produced and changes in blood/urine osmolality are recorded.	Abnormal water load
<i>Inability to excrete a normal water load (decreased urinary output) or failure to dilute urine is considered abnormal</i>	<i>Inability to excrete at least 90% of a 20m1/kg water load in 4 hours, and/or Failure to dilute urine (osm) to < 100 mOsm/kg</i>
	<i>H-,O.</i>

Vaptans are new FDA approved agents for treatment of SIADH
'Vaptans' are a new class of drugs that have emerged for treatment of hyponatremia. These medications act as Vasopressin receptors antagonists blocking the action of AVP in renal tubule, pituitary or smooth muscles depending upon receptor selectivity.

Conivaptan , intravenous use)

Conivaptan is a combined V1/V2 receptor antagonist is FDA approved for short-term intravenous use for treatment of hospitalized patients with SIADH.

Tolivaptan (Oral use)

Tolvaptan is a V2 receptor antagonist that has received FDA approval for oral use

100 mOsmol/kg H₂O with normal renal function) at some level of hypoosmolality. (Urinary concentration must be inappropriate for Plasma Hypoosmolality) • Clinical euvolemia, as defined by the absence of signs of hypovolemia (orthostasis, tachycardia, decreased skin turgor, dry mucous membranes) or hypervolemia (subcutaneous edema, ascites). • Elevated urinary sodium excretion while on normal salt and water intake. • Absence of other potential causes of euvolemic hypoosmolality: hypothyroidism, hypocortisolism (Addison's disease or pituitary adrenocorticotropic hormone [ACTH] insufficiency) and diuretic use. Supplemental • Abnormal water load test (inability to excrete at least 90% of a 20 mL/kg water load in 4 hours and/or failure to dilute U_{osm} to < 100 mOsmol/kg H₂O). • Plasma AVP level inappropriately elevated relative to plasma osmolality. • No significant correction of serum [Na] with volume expansion but improvement after fluid restriction "

align="left" height="259" width="655">Syndrome of Inappropriate ADH Secretion (SIADH): Concept Review

Differential Diagnosis of Hyponatremia Based on Clinical Criteria for the diagnosis of syndrome of inappropriate antidiuretic hormone secretion

Essential

- *Decreased effective osmolality of the extracellular fluid ($1^{3, \dots,} < 275$ mOsmol/kg H₂O).
(True hypoosmolality must be present and hyponatremia secondary to pseudohyponatremia or hyperglycemia must be excluded)
Inappropriate urinary concentration (U_{osm} > 100 mOsmol/kg H₂O with normal renal function) at some level of hypoosmolality. (Urinary concentration must be inappropriate for Plasma Hypoosmolality)*
- *Clinical euvolemia, as defined by the absence of signs of hypovolemia (orthostasis, tachycardia, decreased skin turgor, dry mucous membranes) or hypervolemia (subcutaneous edema, ascites).*
- *Elevated urinary sodium excretion while on normal salt and water intake.*

- *Absence of other potential causes of euvolemic hyposmolality: hypothyroidism, hypocortisolism (Addison's disease or pituitary adrenocorticotrophic hormone [ACTH] insufficiency) and diuretic use.*

Supplemental

- *Abnormal water load test (inability to excrete at least 90% of a 20 mL/kg water load in 4 hours and/or failure to dilute U_{osm} to < 100 mOsm/kg H₂O).*
- *Plasma AVP level inappropriately elevated relative to plasma osmolality.*
- *No significant correction of serum [Na] with volume expansion but improvement after fluid restriction*

Assessment of Extracellular Fluid Volume (ECFV)

Clinical Findings History	Type I, Hypervolemic	Type II, Hypervolemic	Type III, Hypervolemic	SIADH Euvolemic
CHF, cirrhosis, or nephrosis	Yes	No	No	No
Salt & water loss	No	Yes	No	No
ACTH-cortisol deficiency and/or nausea and vomiting	No	No	Yes	No
Physical examination				
<i>Generalized edema, ascites</i>	Yes	No	No	No
<i>Postprandial hypotension</i>	May be	May be	May be"	No
Laboratory				
BUN, creatinine	High-normal	High-normal	Low-normal	Low-normal

Uric acid	High-normal	High-normal	Low-normal	Low-normal
Serum potassium	Low-normal	Low-normal	Normal	Normal
Serum albumin	Low-normal	High-normal	Normal	Normal
Serum cortisol	Normal-high	Normal-high	Low	Normal
Plasma renin activity	High	High	Low	Low
Urinary sodium (Meg unit of time)	Low	Low	High	High

41. True about tumor lysis syndrome are A/E:

a) Hyperuricemia

b) Hypercalcemia

c) Hyperkalemia

d) Hyperphosphatemia

Correct Answer - B

Answer is B (Hypercalcemia):

Tumor Lysis syndrome is characterized with hypocalcemia and not hypercalcemia.

42. The gold standard test for diagnosis of Insulinoma is:

a) '72 hour' fast test

b) Plasma Glucose levels < 3 mmol/l

c) Plasma Insulin levels > 6 μ U/ml

d) C- peptide levels < 50 p mol/e

Correct Answer - A

The answer is A ('72 hour' fast test):

The Gold standard test for diagnosis of Insulinoma is a supervised '72 hour fast' test

Diagnosis of insulinoma requires demonstration of inappropriately high levels of plasma Insulin (and C- peptide) in the presence of documented hypoglycemia (Achieved by 72-hour fast test).

Absolute values of Insulin or C- peptide are not reliable in establishing a diagnosis unless hypoglycemia is documented The '72 hour fast test' allows demonstration of hypoglycemia, together will elevated levels of Insulin and C-peptide and thus becomes the most reliable – gold standard test for establishing a diagnosis of Insulinoma

Diagnosis of Insulinoma: '72 hour fast' test

- The diagnosis of Insulinoma requires the demonstration of an inappropriately elevated plasma insulin (and C-peptide) at the time of hypoglycemia.
- The '72 hour fast' test involves supervised fasting for up to 72 hours or until hypoglycemia can be documented.
- The test is considered positive if at any time when blood glucose levels drop to < 2.2mmol/l (40 mg/dl), the serum insulin levels are recorded to be greater than 6 μ U/ml. (and C- peptide levels > 100

pmo1/1)

- *Studies indicate that 100% of patients with insulinoma will be detected after a supervised 72 hour fast and hence this test is considered the gold standard test.*

First 24 hours: 70-80% of patients with insulinoma can be detected

Up to 48 hours: 98% of patients with insulinoma can be detected

By 72 hours: 100% of patients with insulinoma can be detected

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43. Triple test for diagnosis of down's syndrome includes all of the following except :

a) β - HCG

b) α - Fetoprotein

c) Serum HPL level

d) Serum oestriol level

Correct Answer - C

Answer is C (Serum HPL levels)

Serum HPL is not included as a parameter within the 'triple test' for downs syndrome

Triple Test :

- It is used in the detection of Downs syndrome. Q
- In an affected pregnancy : - level of MSAFP is decreased Q
- level of oestriol is decreased Q
- levels of hCG is High (increased) Q
- This test only gives a risk ratio and result is considered positive if risk ratio is 1 : 2 For confirmation Amniocentesis has to be done^Q
- It is performed between 16 to 18 weeks.Q

44. The following are components of Brown Sequard syndrome except :

a) Ipsilateral extensor plantar response

b) Ipsilateral pyramidal tract involvement

c) Contralateral spinothalamic tract involvement

d) Contralateral posterior column involvement

Correct Answer - D

Answer is D (Contralateral posterior column involvement):

Brown – Sequard syndrome or hemisection of the spinal cord leads to loss of joint position and vibratory sense (posterior column movement) on the ipsilateral side and not on the contralateral side. – Harrison 16th / 2441, 144

Brown sequard syndrome: Hemisection of spinal cord

- Ipsilateral involvement of corticospinal tract : ipsilateral loss of motor power.
- Ipsilateral involvement of posterior column : ipsilateral loss of joint position and vibratory sense.
- Contralateral involvement of spinothalamic tract : contralateral loss of joint position and vibratory sense.

Segmental signs such as radicular pain muscle atrophy or loss of deep tendon reflexes arc unilateral (Lower motor neuron signs at level of lesion).

45. A 25 years old lady with a history of fever for 1 month presents with headache and ataxia.

Brain imaging shows dilated ventricles and significant basal exudates. Which of the following will be the most likely CSF finding?

a) Lymphocytosis, Low Glucose, High protein

b) Lymphocytosis, Normal Glucose, High protein

c) Lymphocytosis, Low Glucose, Normal protein

d) Neutrophilia, Low glucose, Low Protein

Correct Answer - A

Ans. A (Lymphocytosis, Low Glucose, High protein)

Presence of significant basal exudates, together with dilated ventricles (hydrocephalus) in a young female with a prolonged history of fever and headache suggests a diagnosis of Tubercular Meningitis.

Tubercular Meningitis is characterized by Lymphocytic Pleocytosis, Low Glucose and High Protein within the CSF.

The pathological hallmark of Tubercular Meningitis is the predominant involvement of basal cisterns that are observed by the presence of basal inflammatory tissue exudate.

46. What is NOT a feature of Sturge Weber syndrome :

a) Rail track appearance

b) Hemiatrophy of the brain

c) Glaucoma

d) Empty sella

Correct Answer - D

Answer is D (Empty sella):

- *The clinical hallmark in the form of convulsions, Rail road tract appearance on X-ray and unilateral cortical atrophy (hemiatrophy) on CT scan are diagnosis of Sturge-Weber syndrome.*

Sturge weber syndrome

- It results from the anomalous development of primordial vascular bed during early stages of cerebral vascularization.
- The leptomeninges are richly vascularized and the brain beneath becomes atrophied and calcified, particularly in molecular layer of cortex.
- Glaucoma may develop at any time from infancy to adulthood.
- Glaucoma seen in 30% cases.
- Buphthalmos occurs in 60% cases due to IOP elevation occurs before the age of 2 years.
- Symptoms may be large and cloudy eye, photophobia and lacrimation.
- It is related to anterior chamber malformations, high episcleral venous pressure and change in ocular hemodynamics

47. Which of the following is not a Limb Girdle Dystrophy:

a) Sarcoglycan dystrophy

b) Dystrophin dystrophy

c) Dysferlin dystrophy

d) Calpain dystrophy

Correct Answer - B

Answer is B (Dystrophin dystrophy):

Calpain - J, Sarcoglycans (γ, α, β and δ) and dysferlin are all examples of defective gene / locus in Limb girdle dystrophies. Dystrophin is associated with Duchenne and Becker's type of muscular dystrophies and is not associated with Limb girdle dystrophies.

The Limb girdle muscular dystrophies (LGMD) typically manifest with progressive weakness of pelvic and shoulder girdle musculature. Respiratory insufficiency from weakness of diaphragm and cardiomyopathy may occur. However unlike Duchenne dystrophies (Dystrophin) intellectual function remains intact. - Harrison

48. All are congenital myopathies EXCEPT :

a) Centralcore myopathy

b) Nemaline myopathy

c) Z band myopathy

d) Centronuclear myopathy

Correct Answer - C

Answer is C (Z band Myopathy)

Z band myopathy is not classified as a congenital myopathy.

Congenital Myopathy: These are a group of rare disorders distinguished from muscular dystrophies by the presence of specific histochemical and structural abnormalities in muscle.

Most of these are characterized by :

- Onset in early life (primarily disorders of infancy & childhood, but may present in adulthood)
- Non progressive or slowly progressive course
- Proximal or generalized muscle weakness
- Hypotonia

Congenital Myopathies:

Disease and Inheritance	Gene and Locus	Clinical Findings	Pathologic Findings
Central core disease; autosomal-dominant	Ryanodine receptor-1 (RYR1) gene; 19q 13.1	Early-onset hypotonia and non progressive weakness; associated skeletal deformities;	Cytoplasmic cores are lightly eosinophilic and distinct from surrounding sarcoplasm; Found only in

		may develop malignant hyperthermia	type I fibers, which usually predominate, best seen on NADH stain
Nemaline myopathy; autosomal-dominant or autosomal-recessive	Autosomal-dominant (NEM 1) — Tropomyosin 3 (TPM3) gene;	Weakness, hypotonia and delayed motor development in childhood; may also be seen in adults; usually	Aggregates of subsarcolemmal spindle shaped particles (nemaline rods); occur
	Autosomal-recessive (NEM2) — nebulin (NEB) gene; 2q22	involves nonprogressive proximal limb muscles most	predominantly in type 1 fibers; derived from Z-band material (α-actinin) and best seen on
	Autosomal-dominant or recessive — skeletal muscle actin, α chain (ACTA 1) gene; 1q42.1	severely; skeletal abnormalities may be present	modified Gomori stain
Myotubular (centronuclear) myopathy; X-linked (MTM 1), autosomal-recessive, or autosomal-	X-linked-myotubularin (MTM 1) gene; Xq28	X-linked form presents in infancy with prominent hypotonia and poor prognosis; autosomal forms have limb weakness and are slowly	Abundance of centrally located nuclei involving the majority of muscle fibers; central nuclei are usually confined to type I fibers, which are small in diameter. but

dominant

progressive;
autosomal
recessive form
is intermediate
in severity and
prognosis

can occur in both
fiber types

Other uncommon types include minicore myopathy, fingerprint body myopathy and sarcotubular myopathy.

49. Which of the following is used in the treatment of Multiple Sclerosis:

a) Interferon Alpha

b) Interferon Beta

c) Infliximab

d) Interferon gamma

Correct Answer - B

Answer is B (Interferon Beta) :

Interferon Beta should be considered in patients with Relapsing / Remitting MS (RRMS) and Secondary Progressive MS (SPMS) with superimposed relapses.

Interferon Beta reduces the attack rate in M.S. patients and also improves disease severity measures and disease burden.

Interferons

Interferons are cytokines that exhibit antiviral activities, immunomodulating properties and antiproliferative properties. DNA recombinant technology has made available highly purified α , β and γ interferons.

IFNs are not available for oral administration but must be given intramuscularly, subcutaneously or intravenously.

Interferon Alpha (IFN α)	Interferon Beta (IFN β)	Interferon (IFN γ)
Considered for : <ul style="list-style-type: none">Hepatitis B,Hepatitis CMucocutaneous manifestations of	Considered for : <ul style="list-style-type: none">Multiple Sclerosis	Considered for : <ul style="list-style-type: none">Osteopetrosis , (H / 2282) (suggested benefit)

- | | | |
|---|---|---|
| Bence's syndrome (H / 2014) | 3 Approved Agents | |
| • Carcinoid syndrome (H / 2226) | • Aronex (IFN 3la) | • Systemic sclerosis ((H/1987) (modest improvement but recurrence) |
| • Chronic myeloid leukaemia (CML) (H / 640) | • Rebif (IFN (3 I a) Betaseron (IFN (31b) | • Idiopathic pulmonary fibrosis (therapeutic trial) H/ 1556 |
| • Follicular lymphoma (H / 651) | | Chronic granulomatous disease leprosy, non tuberculosis mycobacteria & visceral leishmaniosis (H/357) |
| • Malignant melanoma (Adjuvant) (H / 502) | | • Multiple myeloma (H / 660) |
| • Essential thrombocytosis | | • Renal cell carcinoma (H / 542) |
| | | • Splenomegaly (H / 628) |

Also Note :

Interferon is not curative for any tumor but can induce partial responses in (Harrison 16th / 482)

Follicular lymphoma Hairy cell leukaemia CML

Melanoma

Kaposi's sarcoma

IFN γ has been successfully used in the treatment of Leprosy, Nontuberculous Mycobacteria and Visceral Leishmaniosis. -

Harrison 16th / 357

50. Neurological Involvement with Acanthocytosis is seen in all of the following except:

a) Abetalipoproteinemia

b) Choreoacanthocytosis

c) McLeod Syndrome

d) Zellweger Syndrome

Correct Answer - D

Answer is D (Zellweger Syndrome):

Zellweger Syndrome (Cerebro-hepato-renal syndrome) is typically not associated with Acanthocytosis

Zellweger's (cerebrohepatorenal) syndrome is characterized by accumulation of very-long-chain fatty acids, abnormalities of the synthesis of bile acids, and a marked reduction of plasminogen. Zellweger's (cerebrohepatorenal) syndrome occurs in individuals with a rare inherited absence of peroxisomes in all tissues. They accumulate C_{26} – C_{38} polyenoic acids in brain tissue and also exhibit a generalized loss of peroxisomal functions. The disease causes severe neurological symptoms, and most patients die in the first year of life

Neurological Syndromes with Acanthocytosis

- Abetalipoproteinemia ((Bassen-Kornzweig Disease)
- Choreo-acanthocytosis (Levine-Critchley Syndrome; Neuroacanthocytosis)
- McLeod Syndrome
- Wolman Syndrome (Neurological involvement is generally mild)
Acanthocytes have also been reported in Hallervorden-Spatz

disease and Huntington Disease Like 2 (HDL-2)

Acanthocytosis

The appearance of spiculated erythrocytes in a peripheral blood smear or electron microscopy may be caused by changes in the lipid composition or structure of the red blood cell membrane. Two basic types are distinguished

- Echinocytes (burr cells) that have a serrated outline with small, uniform projections, and
- Acanthocytes (spur cells) with few irregular spicules of varying size.

Differential diagnosis of Acanthocytosis and neurological Syndromes

Diagnosis	Clinical features	Age of onset
Abetalipoproteinemia	Diarrhea, fat malabsorption, vitamin. deficiencies, neurological abnormalities, ataxia, low cholesterol and triglycerides	Neonatal period
Wolman disease	Diarrhea, failure to thrive, hepatosplenomegaly, adrenal calcifications	Neonatal period
Choreo-Acanthocytosis	Progressive neurological symptoms, chorea, epilepsy, dementia; TCK, normal lipoproteins; VPS 1 3A mutations	Adolescence or adult life
McLeod phenotype, McLeod syndrome	Little or no reaction with various antisera in the Kell blood group system; sometimes progressive	Adult life (neurological symptoms)

neurological
symptoms, chorea;
TCK, normal
lipoproteins; XK
mutations

51. In alpha-thalassemia trait, electrophoresis shows:

March 2005

a) Increased HbF and normal HbA2

b) Normal HbF and normal HbA2

c) Normal HbF and decreased HbA2

d) Decreased HbF and normal HbA2

Correct Answer - B

Ans. B: Normal HbF and normal HbA2

Alpha (0) thalassemia - Individuals with this disorder are not able to produce any functional alpha-globin and thus are unable to make any functional hemoglobin A, F, or A2. This leads to the development of hydrops fetalis, also known as hemoglobin Bart, a condition that is incompatible with extra uterine life.

Alpha (+) thalassemia - genetic mutations that result in decreased production of alpha-globin usually due to the functional deletion of 1 of the 4 alpha globin genes. Based on the number of inherited alpha genes, it is subclassified into 3 general forms:

- Thalassemia (-u/ a a) is characterized by inheritance of 3 normal a-genes. These patients are referred to clinically as silent carrier of alpha thalassemia. Other names for this condition are alpha thalassemia minima, alpha thalassemia-2 trait, and heterozygosity for alpha (+) thalassemia minor. The affected individuals exhibit no abnormality clinically and may be hematologically normal or have mild reductions in red cell mean corpuscular volume (MCV) and mean corpuscular hemoglobin (MCH).

- Inheritance of 2 normal alpha genes due to either heterozygosity for alpha (0) thalassemia (α/α^-) or homozygosity for alpha (+) thalassemia (α^-/α^-) results in the development of alpha thalassemia minor or alpha thalassemia-1 trait. The affected individuals are clinically normal but frequently have minimal anemia and reduced mean corpuscular volume (MCV) and mean corpuscular hemoglobin (MCH).
- Inheritance of one normal alpha gene (α/α^-) results in abundant formation of hemoglobin H. This condition is known as HbH disease. The affected individuals have moderate to severe lifelong hemolytic anemia, modest degrees of ineffective erythropoiesis, splenomegaly and variable bony changes
- Persons with alpha-thalassemia traits have normal HbA₂ and HbF levels whereas beta- thalassemia patients have elevated HbA₂

52. A -wave in JVP indicates:

a) Atrial relaxation

b) Atrial contraction

c) Bulging of tricuspid valve into right atrium

d) Ventricular contraction

Correct Answer - B

Ans. B: Atrial contraction

Waves

* a - presystolic; produced by right atrial contraction

* c - bulging of tricuspid valve into the right atrium during ventricular systole (isovolumic phase)

* v - occurs in late ventricular systole; increased blood in right atrium from venous return

Descents

* x - combination of atrial relaxation, downward movement of the tricuspid valve and ventricular systole

* y - tricuspid valve opens and blood flows in to the right ventricle

Abnormal waveform causes

Dominant a wave

* Pulmonary stenosis

* Pulmonary hypertension

* Tricuspid stenosis

Canon a wave

* Complete heart block

* Paroxysmal nodal tachycardia

Ventricular tachycardia

* Dominant v wave

* Tricuspid regurgitation

- * Absent x descent
- * Atrial fibrillation
- * Exaggerated x descent
- * Cardiac tamponade
- * Constrictive pericarditis
- * Sharp y descent
- * Constrictive pericarditis
- * Tricuspid regurgitation
- * Slow y descent
- * Right atrial myxoma

53. In plasmodium vivax malaria, relapse is caused by:
September 2012

a) Sporozoite

b) Schizont

c) Hypnozoite

d) Gameteocyte

Correct Answer - C

Ans: C i.e. Hypnozoite

Malaria

- In malaria, size of RBC is increased in: Vivax
- Infective agent of malaria is: Sporozoite

Falciparum malaria

- Gametocytes are seen in peripheral blood smear
- Parasitemia is highest
- Most virulent plasmodium species
- Exo-erythrocytic stage is absent
- Multiple infections of RBC's
- Splenic rupture is common

54. Which of the following is used for prophylaxis of acute mountain sickness:

a) Frusemide

b) Spironolactone

c) Acetazolamide

d) All of the above

Correct Answer - C

Ans. C: Acetazolamide

The drug acetazolamide may help some people making a rapid ascent to sleeping altitude above 2750 metres, and it may also be effective if started early in the course of acute mountain sickness (AMS).

The CDC advises that Dexamethasone be reserved for treatment of AMS and High-altitude cerebral edema (HACE) during descents, and notes that Nifedipine may prevent High-altitude pulmonary edema (HAPE).

Despite their popularity, antioxidant treatments have not been found to be effective medications for prevention of AMS.

Interest in phosphodiesterase inhibitors such as sildenafil has been limited by the possibility that these drugs might worsen the headache of mountain sickness

55. Which of the following is not used for investigation of fat malabsorption

a) ^{13}C Trioctanoin

b) ^{13}C Triolein

c) ^{13}C Tripalmitin

d) ^{13}C Triclosan

Correct Answer - D

Ans. is 'd' i.e., ^{13}C triclosan [Pediatric Drug Development Concepts and Applications (John Wiley & Sons, 2011)/81; 1 ^{13}C -Breath Tests in Medical Research and Clinical Diagnosis (<http://www.fan-gmbh.de/docs/13c-breathtests.pdf>)

Triclosan is not used for the evaluation of fat malabsorption.

Triclosan is an antibacterial and antifungal agent found in numerous consumer products, including soaps, detergents, toys and surgical cleaning treatments. Its efficacy as an antimicrobial agent and the risk of antibacterial resistance remains controversial.

Tests used for fat malabsorption

Triolein breath test

- ^{13}C triolein breath test is a simple and reproducible method to measure fat malabsorption. It is a non invasive test and it does not require the use of radioactive isotopes.
- The ^{14}C triolein breath test is sensitive and specific for measuring fat malabsorption but involve radiation exposure.
- ^{13}C triolein is simple and effective that does not involve the use of radioactive isotopes.
- The substrate for this breath test is glycerol, esterified in three positions with the unsaturated 18:1 n-1 oleic acid.
- The absorption of triolein is dependent on efficient lipolysis,

sufficient intraluminal bile salt concentration and intact intestinal mucosa.

- A low ^{13}C breath excretion represents probable contribution of all these factors.

The Tripalmitin breath test :?

- The substrate is glycerol esterified with 16:0 fatty acid palmitic acid.
- The oxidation of CO_2 is determined by hydrolysis, bile salt concentration and absorption through intestine.

C Mixed-Triglyceride Breath Test

- The ^{13}C mixed-triglyceride (MTG) breath test is a noninvasive test with which to measure lipase activity.
- The test molecule, 1,3 distearyl, 2 (carboxyl- ^{13}C) octanoyl glycerol, consists of a medium-chain fatty acid
- octanoic acid marked with ^{13}C in the 2-position and the long-chain fatty acid 18:0 in the 1- and 3-position.
- The rationale of the test is that the two stearyl groups have to be split off the glycerol by lipase before ^{13}C octanoyl monoglyceride or ^{13}C octanoate, a medium-chain fatty acid, is absorbed and rapidly metabolized to $^{13}\text{CO}_2$, which appears in breath.
- The rate-limiting step in the oxidation of $^{13}\text{CO}_2$ is the hydrolysis of the fatty acids in the 1- and 3-positions of the mixed triglyceride.
- The amount of $^{13}\text{CO}_2$ that appears in breath is an indicator of lipase activity.
- After an overnight fast, two basal breath samples are taken. The test meal, a slice of white bread with chocolate paste (containing 250 mg ^{13}C MTG), is ingested.
- After the meal, breath samples are collected at 30-min intervals for a period of 6h.

^{14}C -Trioctanoin Breath Test

- The substrate for the trioctanoin breath test is glycerol, esterified with the 8:0 medium-chain fatty acid, octanoic acid.
- Because the absorption of MCT is independent of bile salts and occurs immediately after hydrolysis by pancreatic lipase, absorption can be limited only by insufficient lipolysis.
- This test allows discrimination between patients with pancreatic insufficiency and patients with bile acid deficiency or mucosal

abnormalities.

56. Menke's disease" is a disease of

a) Impaired zinc transport

b) Impaired copper transport

c) Impaired magnesium transport

d) Impaired molybdenum transport

Correct Answer - B

Ans. is 'b' i.e., Impaired copper transport

Menke's disease is caused due to defect in the copper transport.

- There is defect in the transport of copper present in the intestinal mucosa to the blood stream.
- The mucosal lining of intestine contains high level of copper bound to metallothionein protein.
- Rather than being transported to bloodstream, the copper remained in the mucosa and was lost when intestinal cells were naturally sloughed off.

Menkes disease is caused due to defect in the "MNK" gene.

- The protein normally function by moving copper from the intestinal mucosal cells into the blood stream, where it is bound by proteins such as albumin and transported to organs and tissues.
- Serum copper is critical for the functioning of several enzymes**
- Lysyl oxidase → It is important for the cross linking of collagen and elastin such that deficiencies lead to problems in connective tissues such as bones
 - Cytochrome oxidase → Involved in temperature maintenance
 - Tyrosinase → Necessary for pigmentation

Clinical features of menkes disease

- Growth retardation

- Coarse hair, brittle and ivory white (result of depigmentations). The hair fibres are twisted and broken helically (kinky hair).
- Seizures
- Cerebral and cerebellar degeneration (postmortem analysis)
- Hypothermia
- Thrombosis
- Poor bone development
- Increased tendency towards aneurysms

57. All of the following are features of Scleroderma are following except

a) Diffuse periosteal reaction

b) Esophageal dysmotility

c) Erosion of tip of phalanges

d) Lung Nodular infiltrates

Correct Answer - A

Ans. is 'a' i.e., Diffuse periosteal reaction

Skin involvement in systemic sclerosis

- Skin involvement is a nearly universal feature of systemic sclerosis (SSc).
- It is characterized by variable extent and severity of skin. Thickening and hardening.
- The fingers, hands, and face are generally the earliest areas of the body involved.
- Edematous swelling and erythema may precede skin induration.

Other prominent skin manifestations include :

- Pruritus in the early stages
- Edema in the early stages
- Sclerodactyly
- Digital ulcers
- Pitting at the fingertips
- Telangiectasia
- Calcinosis cutis

Radiographs of the hands may reveal

- Soft tissue calcifications (calcinosis cutis).
- Resorption of the distal phalangeal tufts (acro-osteolysis).

Less common radiographic findings are :

- Articular erosions
- Joint space narrowing
- Demineralization
- *The symptoms of the female and presence of antinuclear antibody points towards the diagnosis of systemic sclerosis. It is a case of systemic sclerosis or scleroderma.*

The clues to the diagnosis of scleroderma are :

- Sclerodactyly
- Raynaud's phenomenon
- Dysphagia
- Presence of antinuclear antibody
- *Though systemic sclerosis is a multisystem disease, the two most distinguishing features of systemic sclerosis are:*

o Striking cutaneous changes

- *Notable skin thickening. This is the most easily recognized manifestation of scleroderma.*

Raynaud's phenomenon

- This is the first manifestation of disease in almost every patients.

Dysphagia

- Attributable to esophageal fibrosis and its resultant hypomotility is present in more than 50% of patients.
- Remember,
- *Whenever skin thickening is present along with Raynaud's phenomenon, it is almost always a case of scleroderma".*
- *These two features are not present in any other multisystem disease whose clinical features overlap with that of systemic sclerosis e.g. SLE, rheumatoid arthritis, inflammatory myopathy, Sjogren syndrome".*
- *Although skin changes and Raynaud's phenomenon are the major diagnostic clues, scleroderma is a multisystem disease that most commonly targets peripheral circulation, muscles, joints, gastrointestinal tract, lung, heart and kidney.*
- *So, the symptoms encountered in early presentation of scleroderma include musculoskeletal discomfort, fatigue, weight loss, and heart burn and dysphagia associated with gastroesophageal reflux disease (GERD).*
- *When these symptoms are accompanied by the skin thickness and*

Raynaud c phenomenon, diagnosis of scleroderma

- should be considered.
- Role of autoantibodies in the diagnosis of scleroderma
- Autoantibodies are found in nearly every patient with scleroderma (sensitivity >95%), but they are not specific for scleroderma.
- Scleroderma is associated with wide array of autoantibodies.

Two ANA'S which are more or less unique to scleroderma are:

Antitopoisomerase antibody (20-40%)	Seen in patients with diffuse systemic sclerosis <i>Patients with this autoantibody are more likely to have pulmonary fibrosis and peripheral vascular disease</i>
Anticentromere antibody (20-40%)	<i>Patients with these autoantibodies have poor prognosis These autoantibodies are seen in patients with limited systemic sclerosis</i>

58. LBBB is seen with all except

a) Acute MI

b) Ashmann syndrome

c) Hypokalemia

d) Hyperkalemia

Correct Answer - C

Ans. is 'c' i.e., Hypokalemia

Causes of LBBB are :-

- Aortic stenosis
- *Ischaemic heart disease*
- Hypertension
- Dilated cardiomyopathy
- *Anterior MI*
- *Primary degenerative disease (fibrosis) of the conducting system (Lenerge disease)*
- *Hyperkalaemia*
- Digoxin toxicity

Ashmann phenomenon (has both LBBB and RBBB)

- *Atrial fibrillation has a narrow complex qRS but Ashmann phenomenon seen in atrialfibrillation is characterized by broad complex qRS with usually a RBBB morphology. Thus if an impulse lands on the bundle of HIS and finds the right bundle refractory then RBBB will occur. Also remember that the refractory period of right fascicle is more than that of the left fascicle resulting in RBBB mostly in these patients.*
- *ECG findings of LBBB*
- *Normally the septum is activated from left to right, producing small Q waves in the lateral leads. In LBBB, the normal direction of septal*

depolarisation is reversed (becomes right to left), as the impulse spreads first to the RV via the right bundle branch and then to the LV via the septum.

- *This sequence of activation extends the qRS duration to > 120 ms and eliminates the normal septal Q waves in the lateral leads.*
- *The overall direction of depolarisation (from right to left) produces tall R waves in the lateral leads (IaVLV5V6) deep S waves in the right precordial leads (V₄ R) and usually leads to left axis deviation.*
- *As the ventricles are activated sequentially (right, then left) rather than simultaneously, this produces a broad or notched (W-shaped) R wave in the lateral leads.*
- *Non-concordance in ST segment and T wave changes.*
- *The point is that the two fascicles of bundle of his have different refractory periods with the right fascicle having higher refractory period than the left.*
- *This means that if an impulse lands on the bundle of HIS and finds the right bundle refractory then RBBB will occur.*
- *In atrial fibrillation because of faster conduction, normally we see narrow complex qRS but sometimes we may see broad complex qRS also which is technically called Ashmann phenomenon.*
- *Mostly in Ashmann phenomenon RBBB is seen based on the physiological principle of refractory period of right fascicle more than the left one. However, rarely LBBB can also be seen if the impulse lands to find the left fascicle refractory. Irrespective of RBBB or LBBB, broad complex qRS will occur in case of atrial fibrillation and Ashmann phenomenon is occurrence of broad complex qRS in atrial fibrillation and not the occurrence of RBBB as is the popular perception.*
- *Hyperkalemia can cause defective repolarization and hence cause Bundle branch block that culminates in sine wave pattern.*
- *In acute MI, ischemia can damage the left bundle leading to LBBB.*

59. Right axis deviation is seen in:

a) Lying down position

b) Thin and tall

c) Obese person

d) At the end of peak expiration

Correct Answer - B

Ans. b. Thin and tall

Axis deviation in ECG

Left Axis Deviation

- Physiological:
- Obesity°
- Pregnancy°
- Lying down position
- Pathological:
- Inferior wall MI
- Left anterior hemiblock°
- Pacing from the apex of the right or left ventricle
- Ventricular tachycardia from focus in the apex of the left ventricle
- Emphysema°
- Wolf-Parkinson-White syndrome (when pre-excitation is due to a right lateral or right posterolateral bypass tract)°

Right Axis Deviation

- Physiological:
- Lean and thin°
- Pathological:
- Anterolateral MI°
- Left posterior hemiblock°
- Right ventricular dominance° Wolf-Parkinson-White syndrome

(When pre-excitation is due to a left lateral or left posterolateral bypass tract)^o

60. A patient with Hepatitis C, exhibits hypocomplementemia with 2 gm/day proteinuria and hematuria. The most probable diagnosis is

a) MPGN

b) Cryoglobulinemia

c) Membranous glomerulopathy

d) Post-infectious glomerulonephritis

Correct Answer - A

Ans. a. MPGN

- Type I MPGN is commonly associated with persistent hepatitis C infections, autoimmune diseases like lupus or cryoglobulinemia, or neoplastic diseases." - Harrison 18/e p2344
- So, in the above mentioned patient with Hepatitis C, exhibits hypocomplementemia with 2 gm/day proteinuria and hematuria. The most probable diagnosis is MPGN

Membranoproliferative Glomerulonephritis

- MPGN is sometimes called mesangiocapillary glomerulonephritis or lobular glomerulonephritis.
- It is an immune-mediated glomerulonephritis characterized by thickening of the GBM with mesangioproliferative changes; 70% of patients have hypocomplementemia^Q.
- MPGN is subdivided pathologically into type I, type II, and type III disease.
- Type I MPGN is commonly associated with persistent hepatitis C infections^Q, autoimmune diseases like lupus or cryoglobulinemia^Q, or neoplastic diseases

- Types II and III MPGN are usually idiopathic, except in patients with complement factor H deficiency, in presence of C₃ nephritic factor and/or in partial lipodystrophy producing type II disease, or complement receptor deficiency in type III disease.

Membranoproliferative Glomerulonephritis

Type I MPGN (Most Common)

- Idiopathic
- SLE^Q
- SLE^Q
- Hepatitis C^Q ± cryoglobulinemia Mixed cryoglobulinemia
- Hepatitis b^Q
- Cancer: Lung, breast and ovary (germinal)

Type II MPGN (Dense Deposit Disease)

- Idiopathic
- C₃, nephritic factor associated^Q

Type III MPGN

- Idiopathic
- Complement receptor deficiency^Q

61. All are indicated in a patient with cystinuria with multiple renal stones except

a) Cysteamine

b) Increase fluid intake

c) Alkalinization of urine

d) Penicillamine

Correct Answer - A

Ans. a. Cysteamine

- Patient with cystinuria with multiple renal stones should be treated with increase urine volume (high fluid intake), alkalinization of urine Penicillamine and tiopronin.

Cystinuria (AR)

- Inheritance: Autosomal recessive
- Molecular defect: Shared dibasic cystine transporter SLC3A1, SLC7A9^Q
- Tissue manifesting transport defect: Proximal renal tubule, jejunal mucosa^Q
- Individual substrate: COLA (Cystine, Ornithine, Lysine, Arginine)^Q
- Clinical features: Cystine nephrolithiasis^Q

Treatment:

- Increase urine volume^Q (high fluid intake)
- Alkalinization of urine^Q
- Penicillamine^Q and tiopronin undergoes sulfhydryl-disulphide exchange with cystine to form mixed disulphides, since these disulphides are much soluble than cystine, pharmacologic therapy can prevent and promote dissolution of calculi



62. All of the following are true regarding Raynaud's phenomenon except:

a) It involves acral parts of fingers

b) Migratory thrombophlebitis is seen only in Raynaud's phenomenon

c) Drugs acting by inhibiting the beta receptors in blood vessels also play a role

d) Emotional stress may also precipitate Raynaud's phenomenon

Correct Answer - B

Ans. b. Migratory thrombophlebitis is seen only in Raynaud's phenomenon

- Apart from Raynaud's phenomenon, migratory thrombophlebitis can be seen only in Buerger's disease, malignancies etc

Malignancies associated with Migratory Thrombophl

CA pancreas (MC)^Q Prostate cancer^Q

CA lung^Q Ovarian cancer^Q

Glalignancies^Q Lymphoma^Q

Raynaud's Phenomenon

- Raynaud's phenomenon is characterized by episodic digital ischemia on exposure to cold or emotional stress^Q
 - Manifested by the sequential development of digital blanching, cyanosis and rubor (redness) of fingers or toes^Q
 - BCR: Blanching, Cyanosis and Rubor (redness)
- Triphasic Color Response Include Three Stages**
- Blanching^Qstage of local syncope)
 - With exposure to cold, digital arterioles goes into spasm
 - Decreased flow is evidenced by pallor or blanching

- Digits may appear white

Raynaud's Phenomenon

Triphasic Color Response Include Three Stages

Cyanosis^Q (stage of local asphyxia)

- Capillaries and venules dilate
- Cyanosis results from deoxygenated blood present in these vessels

Red Engorgement^Q(stage of recovery)

With rewarming or passing of attack, the digital vasospasm resolves

- Blood flow into dilated arteries and capillaries increases dramatically
- Reactive hyperemia imparts bright red color to the digits
- In addition to rubor and warmth, patient often experiences a throbbing,
- painful sensation during the hyperemic phase
- Raynaud's phenomenon is divided into: Primary or idiopathic (Raynaud's disease^Q) - Secondary (associated with other diseases

Associations

- Raynaud's phenomenon occurs frequently in patients who also have migraine or variants angina^Q. These associations suggest a common predisposing cause for vasospasm^Q.
- Occupational groups that use vibrating tools are more predisposed
- Sclerodactyly^Q (thickening and tightening of digital subcutaneous tissue) may develop in few patients

Classification of Raynaud's Phenomenon

- Primary or idiopathic Raynaud's phenomenon: Raynaud's disease
- Secondary Raynaud's phenomenon
- Collagen vascular diseases: scleroderma, SLE, rheumatoid arthritis, dermatomyositis, polymyositis
- Arterial occlusive diseases: atherosclerosis of the extremities, thromboangitis obliterans, acute arterial occlusion, thoracic outlet syndrome
- Pulmonary hypertension
- Neurologic disorders: intervertebral disk disease, syringomyelia, spinal cord tumors, stroke, poliomyelitis, carpal tunnel syndrome
- Blood dyscrasias: cold agglutinins, cryoglobulinemia, cryofibrinogenemia, myeloproliferative disorders, Waldenstrom's macroglobulinemia
- Trauma: vibration injury, hammer hand syndrome, electric shock,

cold injury, typing, piano playing

- Drugs: ergot derivatives, methysergide, beta-adrenergic receptor blockers, bleomycin, vinblastine, cisplatin

Raynaud's Disease

- Diagnosis of Raynaud's disease is made when the secondary causes of Raynaud's phenomenon are ruled out^Q.
- Majority (70-90%) of patients are young women^o < 40 years of age.
- Geographic regions located in cooler, damp climates have a higher reported prevalence^Q.

Clinical Features:

- Fingers^Q are involved more commonly than toes.
- On examination, patient is entirely normal.
- Radial, ulnar and pedal pulses are normal^Q

Treatment

- There is no cure, all treatments mainly palliate symptoms and decrease the severity and, perhaps, frequency of attacks^Q
- Majority (90%) of patients will respond to avoidance of cold and other stimuli^Q.
- Remaining 10% of patients can be treated with a variety of vasodilatory drugs
- CCBs such as diltiazem and nifedipine are the drugs of choice^Q.

63. A patient on amphotericin B develops hypokalemia of 2.3 meq/l. K+ supplementation required?

a) 40 mEq over 24 hours

b) 60 mEq over 24 hours

c) 80 mEq over 24 hours

d) 120-160 mEq over 24 hours

Correct Answer - D

Ans. d. 120-160 mEq over 24 hours

- Except in unusual circumstances, the total amount of potassium administered daily should not exceed 200 mEq.
- Potassium Supplementation**
- A prudent protocol to follow is to add potassium chloride to IV solutions at a final concentration of 40-60 mEq/L and to administer no more than 10-20 mEq/L of potassium per hour
 - Except in unusual circumstances, the total amount of potassium administered daily should not exceed 200 mEq.
 - IV potassium replacement is indicated for patients with severe hypokalemia and for those who can not take oral supplementation.
 - For severe deficiency, potassium may be given through a peripheral IV line in a concentration that should exceed 40 mEq/L, at the rates upto 40 mEq/L/Hour.
 - Continuous ECG monitoring is indicated and the serum potassium levels should be checked every 3-6 hours.
 - For the initial administration, avoid glucose containing fluid to prevent further shift of potassium into the cells.

- Magnesium deficiency also needs to be corrected at the same time, particularly in refractory hypokalemia

64. A patient with 8 cm x 8 cm abscess in right lobe of liver was treated -with aspiration multiple times (3 times) and with systemic amebicide. Now cavity is remaining in right lobe of liver but there is nothing in the cavity. Seven days course of luminal amebicides is given. How will you follow up?

a) Stool examination only

b) USG weekly for 1 month followed by monthly USG till 1 year

c) USG weekly for 3 months followed by CT scan at 3 months.

d) USG or CT scan monthly and stool examination weekly

Correct Answer - B

Ans. b. USG weekly for 1 month followed by monthly USG till 1 year

- In uncomplicated cases of amebic liver abscess, follow-up is done with ultrasound.
- Role of ultrasound in the diagnosis and treatment follow-up of amoebic liver abscess, by K. Shamsi, A. De Schepper, F. Deckers, E. de Bergeyck, J. Van den End
- "Serological and clinical data in combination with these nonspecific sonographic features are sufficient for the management of ALA, obviating the need for expensive and invasive techniques in majority of the cases."- <http://link.springer.com/article/10.1007/s00221420?LI=true>
- Sabiston says "The average time to radiologic resolution is 3 to 9

months and can take as long as years in some patients. Studies have shown that more than 90% of the visible lesions disappear radiologically, but a small percentage of patients are left with a clinically irrelevant residual lesion."

65. Which of the following is not true about polymyositis

a) Limb girdle weakness

b) Ophthalmoplegia

c) Para-neoplastic syndrome

d) Spontaneous discharge in EMG

Correct Answer - B

Ans. b. Ophthalmoplegia

- PM mimics many other myopathies and is a diagnosis of exclusion.
- Involvement of extra-ocular and facial muscles rules out polymyositis.

Polymyositis (PM)

- PM mimics many other myopathies and is a diagnosis of exclusion".^Q
- Subacute inflammatory myopathy affecting adults and rarely children, who do not have any of the following:
 - Rash^Q
 - Involvement of extra-ocular and facial muscles^Q
 - Family history of neuromuscular disease
 - History of exposure to myotoxic drugs and toxins^Q
 - Endocrinopathy^Q
 - Neurogenic disease^Q
 - Muscular dystrophy^Q
 - Biochemical muscle disorders
 - Inclusion body myositis (IBM) as excluded by muscle biopsy
- As an isolated entity, PM is a rare (and overdiagnosed) disorder
- More commonly, PM occurs in association with a systemic

autoimmune or connective tissue disease, or with a known viral or bacterial infection.

- Drugs, especially d-penicillamine, statins, or zidovudine^Q (AZT), may also trigger an inflammatory myopathy similar to PM

66. Which of the following advises is not given to a 35 years old female patient with recurrent renal stone

a) Increase water

b) Restrict protein

c) Restrict salt

d) Restricted calcium intake

Correct Answer - D

Ans. d. Restricted calcium intake

- A source of calcium at each meal may actually help prevent oxalate stones from forming as the calcium binds with oxalate in food and thus prevents the oxalate from being absorbed into the body^Q

Dietary Modification in Stone Disease

- Increase Intake of
- Fluid^Q
- Dietary calcium^Q
- Potassium and phytates
- Vitamin C^Q

Decrease Intake of

**Oxalate^Q Animal
protein^Q**

Sucrose Fructose

Sodium

67. A 28 years old man has anterior lenticonus and ESRD now. His maternal uncle also died of similar illness. Diagnosis is

a) ARPKD

b) ADPKD

c) Oxalosis

d) Alport's syndrome

Correct Answer - D

Ans. d. Alport's syndrome

- The given clinical picture is typical of Alport's syndrome, which is characterized by triad of hereditary nephritis (ESRD), sensorineural deafness and ocular abnormalities (anterior lenticonus).

**Alport's Syndrome (Characterized by triad of)
Hereditary Nephritis**

- Hematuria (earliest feature)^Q
- Mild Proteinuria^Q
- Chronic glomerulosclerosis
- Progressive renal insufficiency
- Nephrotic syndrome (rare)

Sensorineural Deafness

- MC extra-renal abnormality^Q
- Asymmetric^Q

Ocular Abnormalities

- Anterior lenticonus^Q
- Dot and Fleck retinopathy

- Recurrent corneal erosions^Q and opacities^Q
- Cataract^Q
- Retinal detachment
- Nystagmus
- Leiomyomatosis

Treatment of Alport's Syndrome

- Primary treatment is control of systemic hypertension and use of ACE inhibitors to slow renal disease progression

68. Pinna calcification is seen in all except

a) Gout

b) Ochronosis

c) Frost bite

d) Addison's disease

Correct Answer - A

Ans. a. Gout

Pinna Calcification is seen in

Addison's disease^Q Diabetes mellitus

Ochronosis^Q Hyperthyroidism^Q

von Meyenburg's

Acromegaly^Q disease

(systemic chondromalacia)

Hypertension

- Late calcification of the auricular cartilage following frostbite.
- ([http://www.bcdecker.com/Sample of Chapter/1550092413 .pdf](http://www.bcdecker.com/Sample%20of%20Chapter/1550092413.pdf))
- Delayed dystrophic calcification of the underlying auricular cartilage may develop years after the initial frostbite. When this occurs, the pinna is bony and hard to palpation. A radiograph of the pinna will reveal radiodense areas of calcification in the auricular cartilage.

69. Which of the following does not need treatment

a) Neuroblastoma

b) Burkitt's lymphoma

c) T cell lymphoblastic leukemia

d) AML

Correct Answer - A

Ans. a. Neuroblastoma

Though all of the four malignancies in the given options should be treated, but spontaneous regression might be seen in neuroblastoma. So, the Ans. of exclusion is neuroblastoma

Tumors with Spontaneous Regression (NCR MR)

Neuroblastoma^Q Malignant melanoma^Q

Choriocarcinoma^Q Retinoblastoma^Q

Renal cell carcinoma^Q

Leukemia	Treatment
AML	Cytarabine + Anthracycline +/- Etoposide
CML	Imatinib mesylate (DOC), Hydroxyurea, Interferon- γ
	Induction: Vincristine,

ALL	<p>prednisone, Daunorubicin, asparaginase, intrathecal Methotrexate</p> <p>Consolidation: Cyclophosphamide, aspraginase</p> <p>Maintenance: 6- mercaptopurine, Methotrexate</p>
CLL	<p>Fludarabine and Chlorambucil</p>

Burkitt's Lymphoma

- Treatment of Burkitt's Lymphoma in both children and adults should begin within 48 hours of diagnosis and involves the use of intensive combination chemotherapy regimens incorporating high doses of cyclophosphamide.
- Prophylactic therapy to the CNS is mandatory.
- Today, cure can be expected in 70-80% of both children and young adults when effective therapy is

70. With ageing, a slight decrease in cognitive impairment is seen due to increase in level of:

a) Homocysteine

b) Taurine

c) Methionine

d) Cysteine

Correct Answer - A

Ans. a. Homocysteine

- High levels of plasma Homocysteine and low levels of plasma folate and vitamin B₁₂ have been shown to be associated with cognitive impairment (dementia) in the elderly. They have also been associated with Alzheimer's disease and vascular dementia.
- Cognitive decline in elderly (dementia) with ageing is associated with nutritional status most notably with low folate, low vitamin B₁₂ and elevated homocysteine'. - Preventive Nutrition (Springer) 2009/325
- The vitamins were the three B vitamins folic acid, vitamin B6, and vitamin B12, which inhibit production of the amino acid homocysteine. High blood levels of homocysteine are associated with increased risk of cognitive decline, dementia, and cardiovascular disease.

Homocysteine and Dementia

- Homocysteine is an amino acid that has been shown to have direct and indirect neurotoxic effects in vitro at high concentrations.
- Several observational studies have consistently shown cross-sectional association between high levels of serum homocysteine levels and impaired cognitive function (dementia). This association

has generally been greater among elderly than among the middle aged.

- Current data demonstrate that homocysteine is strongly associated with cognitive dysfunction in ageing°.
- Vitamin B₁₂, folate and homocysteine are closely interlinked and supplementation of vitamin B₁₂ and folate in diet has been used to reduce homocysteine levels.

71. A Patient presents with pain in Meta-Tarso-Phalangeal joints and is a known case of chronic renal failure. This is due to accumulation of:

a) Rh factor

b) Uric acid

c) Serum urea

d) HLA B27 typing

Correct Answer - B

Ans. b. Uric acid

- The underlying basis of gouty arthritis is increased serum uric acid level.
- Most common joint involved in gout: Meta-Tarso-Phalangeal joints^Q
- Precipitation of monosodium urate crystals^o into the joints is the underlying basis for these urate crystals is increased total body urate levels

72. SARS causative agent

a) Corona-virus

b) Picorna-virus

c) Myxovirus

d) Retrovirus

Correct Answer - A

Ans. a. Corona-virus

- SARS-associated coronavirus (SARS-CoV) caused epidemics of pneumonia from November 2002 to July 2003.
- Corona Virus**
- SARS virus is corona virus.
 - Corona virus infections in human beings usually remain limited to upper respiratory tract.
 - In contrast, the outbreak of SARS in 2003 was characterized by serious respiratory illness, including pneumonia and progressive respiratory failure. In all likelihood, the SARS virus originated in a non-human host and acquired the ability to infect humans.
 - Chinese horse-shoe bats are natural reservoirs of SARS-like Coronavirus.
 - Incubation period of SARS Coronavirus: 6 days
 - Death from progressive respiratory failure occurs in almost 10% of cases, with highest death rates among elderly.

73. Blink reflex is used for

a) Mid pontine lesions

b) Neuromuscular transmission

c) Axonal neuropathy

d) Motor neuron disease

Correct Answer - A

Ans. a. Mid pontine lesions

- The Blink Reflex Test (BRT) is a neurophysiological examination used for evaluation of brainstem reflex circuits.:
- In vertebrate anatomy the brainstem (or brain stem) is the posterior part of the brain, adjoining and structurally continuous with the spinal cord. It is usually described as including the medulla oblongata (myelencephalon), pons (part of metencephalon), and midbrain (mesencephalon).

Pons:

- The pons contains nuclei that relay signals from the forebrain to the cerebellum, along with nuclei that deal primarily with sleep, respiration, swallowing, bladder control, hearing, equilibrium, taste, eye movement, facial expressions, facial sensation, and posture
- A number of cranial nerve nuclei are present in the pons**
- Mid-pons: the 'chief' or 'pontine' nucleus of the trigeminal nerve sensory nucleus (V)
 - Mid-pons: the motor nucleus for the trigeminal nerve (V)
 - Lower down in the pons: abducens nucleus (VI)
 - Lower down in the pons: facial nerve nucleus (VII)
 - Lower down in the pons: vestibulocochlear nuclei (vestibular nuclei and cochlear nuclei) (VIII)

The corneal eye blink reflex neural circuit consists of

- Trigeminal 1° afferent (free nerve endings in the cornea, trigeminal nerve, ganglion, root, and spinal trigeminal tract), which end on —> Trigeminal 2° afferent *in* the spinal trigeminal nucleus, some of which send their axons to --> Reticular formation interneurons, which send their axons bilaterally to —> Facial motor neurons in the facial nucleus, which send their axons in the facial nerve to —* Orbicularis oculi, which functions to lower the eyelid

74. Grisel syndrome all are true except

a) Post-adenoidectomy

b) Conservation treatment

c) Inflammation of cervical spine ligaments

d) No need for neurosurgeon

Correct Answer - D

Ans. d. No need for neurosurgeon

- Grisel Syndrome:
- Non-traumatic atlanto-axial subluxation may occur secondary to any inflammatory process in the upper neck
- It is described following tonsillectomy and adenoidectomy
- Conservation treatment: Cervical immobilization, Analgesia and Antibiotics to reduce the risk of neurological deficit

Grisel Syndrome

- Non-traumatic atlanto-axial subluxation may occur secondary to any inflammatory process in the upper neck^Q
- Due infection in the peri-odontoid vascular plexus^Q that drains the region, bringing about paraspinal ligament laxity
- Described following tonsillectomy and adenoidectomy^Q
- It maybe associated with overuse of diathermy either for removal of adenoid or following curettage^Q, when used for hemostasis.
- Children with Down syndrome^o have atlanto-axial instability

Treatment:

- Cervical immobilization^Q
- Analgesia^Q
- Antibiotics^Q to reduce the risk of neurological deficit

75. All of the following are seen in cervical syringomyelia except:

a) Burning sensation in hands

b) Hypertrophy of abductor pollicis brevis

c) Plantar extensor

d) Absent biceps reflex

Correct Answer - B

Ans. b. Hypertrophy of abductor pollicis brevis

76. Which of the following is a feature of temporal arteritis

a) Giant cell arteritis

b) Granulomatous vasculitis

c) Necrotizing vasculitis

d) Leucocytoclastic vasculitis

Correct Answer - A
Ans. a. Giant cell arteritis

77. A 70-years-old retired military person with good previous medical record complains of bi-temporal headache which is decreased in lying down position. He states that he gets relief by giving pressure over bilateral temples. The patient also complains of loss of appetite with feeling feverish. Diagnosis is:

a) Chronic tension headache

b) Temporal arteritis

c) Migraine

d) Fibromyalgia

Correct Answer - A

Ans. a. Chronic tension headache

78. A patient of rheumatoid arthritis develops sudden onset quadriparesis, Babinsky sign was positive, increased muscle tone of limbs with exaggerated tendon jerks and worsening of gait with no sensory. sphincter involvement. Best initial investigation is

a) X-ray of cervical area of neck in flexion and extension

b) MRI brain

c) EMG and NCV within 48 hours

d) Carotid angiography

Correct Answer - A

Ans. a. X-ray of cervical area of neck in flexion and extension

- In patients of rheumatoid arthritis with compressive Myelopathy or neurological dysfunction investigation to be done next is X-ray of cervical area of neck in flexion and extension
- Neurological Involvement in Rheumatoid Arthritis**
- Atlanto-axial involvement of cervical spine is clinically noteworthy because of its potential to cause compressive Myelopathy and neurological dysfunction^Q
 - Neurological manifestations are rarely a presenting sign or symptom of atlanto-axial disease, but they may evolve over time with progressive instability of C1 or C2^Q
 - It does not affect thoracic or lumbar spine^Q
- Investigation:**
- In patients of compressive Myelopathy or neurological dysfunction

investigation to be done next is X-ray of cervical area of neck in flexion and extension^Q

79. All are true about type 1 renal tubular acidosis except:

a) Renal stones

b) Hypokalemia

c) Sodium bicarbonate requirement >4 mg/day

d) Urine pH > 5.5

Correct Answer - C

Ans. c. Sodium bicarbonate requirement

Renal Tubular Acidosis

Feature	Type I (Distal)	Type II (Proximal)	Type IV
Normal anion gap	Yes	Yes	Yes
Minimum urine pH	>5.5°	<5.5°	<5.5
A filtered bicarbonate excreted	<10	>15	<10
Serum potassium	Low	Low	High°
Fanconi's syndrome	No	Yes°	No
Stones/Nephrocalcinosis	Yes°	No	No
Daily acid excretion	Low	Normal °	Low
Urinary anion gap	Positive	Positive	Positive

Type 1 (Distal) RTA

- In distal RTA, the kidneys are unable to acidify the urine to pH
- Treatment
- Early initiation of alkali replacement at doses equivalent to 1-3 mmol/kg per day of bicarbonate in divided doses will usually correct the acidosis, hypokalemia, and hypocitraturia, maintaining growth and preventing bone disease in early-onset dRTA.

- Citrate is generally tolerated better than sodium bicarbonate and can be given as the potassium or sodium salt, depending on the severity of hypokalemia.
- In patients who present later with kidney stones. large fluid intake and sufficient alkali to restore normal acid-base balance, correct the hypocitraturia and reduce hypercalciuria, thereby inhibiting the formation of new stones

Treatment of Type 2 (Proximal) RTA

- It is difficult to restore normal acid-base balance in patients with proximal RTA despite large amounts of alkali. This is the case because they continue to waste bicarbonate (fractional excretion >15%) until the serum level falls below a threshold, usually about 15-17 mmol/L, at which time bicarbonate is completely reabsorbed distally and the urine is maximally acidified with pH <5.5.
- When the serum bicarbonate concentration is raised above the threshold with alkali therapy, bicarbonate wasting recurs and causes hypokalemia as potassium is secreted to maintain luminal electroneutrality.
- Thus, treatment of pRTA requires 5-15 mmol/kg per day of bicarbonate together with supplemental potassium

80. A 12 months old girl of ajabi pal aped pallor since 3 months of age. One unit of bloth ansfusion was done at 5 months of age. Now presents with pallor, on examination hepatosplenomegaly. Hemoglobin was 3.8 gm/dl., MCV= 68, MCH = 19. Peripheral smear showed schistocytes. Bone marrow examination show erythroid hyperplasia. Diagnosis is:

a) Sickle cell anemia

b) Alpha-thalassemia

c) Beta-thalassemia (major)

d) Glucose-6-phosphate dehydrogenase

Correct Answer - C

Ans. c. Beta-thalassemia

81. Which of the following is true about WILSON disease

a) High copper in urine, high copper in serum

b) High ceruloplasmin

c) Low serum copper

d) Low urinary copper

Correct Answer - C

Ans. c. Low serum copper

Wilson disease is characterized by **low serum copper**, **low ceruloplasmin** and **high urinary excretion of copper**. Wilson disease is characterized by:

- **ATP7B protein deficiency impairs biliary copper excretion, resulting in positive copper balance, hepatic copper accumulation, and copper toxicity** from oxidant damage.
- **Defective copper incorporation into apoceruloplasmin leads to excess catabolism and low blood levels of ceruloplasmin.**
- **Serum copper levels are usually lower than normal because of low blood ceruloplasmin**, which normally binds >90% of serum copper. As the disease progresses, **nonceruloplasmin serum copper ("free" copper) levels increase**, resulting in copper buildup in other parts of the body, such as the brain, leading to **neurologic and psychiatric disease**.

82. Which of the following is seen in pneumothorax

a) Over expanded chest wall

b) Reduced concentration of surfactant

c) More negative intrapleural pressure

d) Increased lung compliance

Correct Answer - B

Ans. b. Reduced concentration of surfactant

- Pneumothorax decreases the quantity of surfactant in the collapsed lung.
- Over expanded chest wall is characteristically seen in conditions where the lung loses its elasticity, such as in emphysema, and the natural tendency of the chest wall to recoil towards the outside, causes an over expanded chest.
- In pneumothorax, intra-pleural pressure equilibrates with the ambient barometric pressure and the lung's natural recoil tendency causes it to collapse.
- Pneumothorax tends to cause collapse of the lungs and a decreased compliance

Surfactant

- Produced by Type II alveolar epithelial cells (pneumocytes)^Q
- Synthesis of surfactant begins at 16-18 weeks of gestation and peaks at 35 weeks of gestation^Q.
- It is stored in alveolar cells until 26 weeks when release on the alveolar surface occurs.
- Secreted by exocytosis in the form of lamellar bodies which is converted to tubular myelin

- Composed of Dipalmitophosphatidyl choline (62%)^Q, phosphatidyl glycerol (5%)^Q, and other phospholipids, neutral lipids, protein and carbohydrate.

Function

- Reduces alveolar surface tension^Q
- Prevent alveolar collapse^Q
- Prevent pulmonary edema^Q

Deficiency occur with

- Occlusion of main bronchus^Q
- Occlusion of pulmonary artery^Q
- Cigarette smokers^Q
- Long term inhalation of 100% O₂.^Q

83. All of the following signs a can be seen in corticospinal tract injury except:

a) Positive Babinski sign

b) Difficulty in performing skilled movements of the distal upper limb

c) Superficial abdominal reflex absent

d) Clasp knife spasticity

Correct Answer - D

Ans. d. Clasp-knife spasticity

- When the muscles are hypertonic, as in a UMN lesion, the sequence of moderate stretch —n muscle contraction, strong stretch —n muscle relaxation is seen.
- Passive flexion of the elbow meets immediate resistance as a result of the stretch reflex in the triceps muscle.
- Further stretch activates the inverse stretch reflex. The resistance to flexion suddenly collapses, and the arm flexes.
- Continued passive flexion stretches the muscle again, and the sequence is repeated.
- This sequence of resistance followed by a 'give' when a limb is moved passively is known as the clasp-knife effect because of its resemblance to the closing of a pocket knife.

It is also known as lengthening reaction because it is the response of a spastic muscle to lengthening

Upper Motor Neuron Lesions	Lower Neuron Lesions
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Decreased°Weakness (Muscle groups or	Very much decreasedWeakness
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Power

Power	Limbs being affected and not individual muscles ^Q	(severe) due to paralysis of individual muscles ^Q
Tone	Hypertonia (Clasp knife spasticity ^Q) Minimal ^o , if present	Flaccidity (Hypotonia ^o)
Wasting/Atrophy	and due to disuse atrophy	Marked (cardinal feature ^o)
Reflexes		
Superficial reflexes	Lost ^Q	Lost! ^Q
Deep reflexes	Brisk/Exaggerated ^Q	Exaggerated ^Q
Clonus	May be + nt ^Q	Absent ^Q
Plantar	Extensor ^Q	Flexor or no response ^Q
Fasciculations	Absent ^Q	Present ^Q
Reaction of degeneration in muscles	Absent ^Q	Present ^Q

84. A 50-year old male came to emergency department with complains of unilateral headache, diplopia and difficulty in chewing food. On evaluation, MR1 was normal, ESR was persistently high. The most appropriate drug for treatment:

a) Aspirin

b) Coxibs

c) Prednisolone

d) Sodium vaiproate

Correct Answer - C

Ans. c. Prednisolone

- A 50-year old male with complaints of headache, diplopia and difficulty in chewing food with normal MRI and persistently high ESR points towards a diagnosis of temporal (giant cell) arteritis. When the clinical diagnosis is suspected, treatment must be prompt and consists of high-dose prednisolone (corticosteroid therapy)e.
- Giant cell arteritis and its associated symptoms are exquisitely sensitive to glucocorticoid therapy. Treatment should begin with prednisone, 40-60 mg/d for .1 month, followed by a gradual tapering. When ocular signs and sYmptoms occur, consideration should be given for the use of methylprednisolone 1000 mg daily for 3 days to protect remaining vision."- Harrison 18/e p2795

85. A 20 year old male presented with jaundice for the past 2 weeks. His liver function tests revealed serum bilirubin to be 0.9 mg/dL, SGOT/SGPT to be 1240/1450 IU. He was found to be positive for HBsAg and IgM anti-HEV antibodies and negative for IgM anti HBc. The most likely diagnosis is

a) Acute hepatitis with mutant hepatitis B virus

b) Super infection of hepatitis E virus with chronic hepatitis B infection

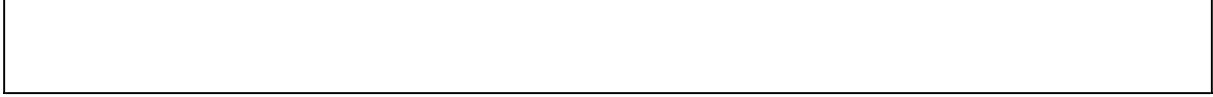
c) Acute hepatitis with wild type hepatitis B virus

d) Co-infection of hepatitis B and E viruses

Correct Answer - B

Ans. b. Super infection of hepatitis E virus with chronic hepatitis B infection

- In the given question, patient presents with jaundice, deranged LFT (raised SGOT/SGPT), HBsAg positive, IgM anti-HEV antibodies positive and IgM antiHBc-negative. As the patient is IgM anti-HBc-negative, acute hepatitis B is ruled out. As the patient is IgM anti-HEV antibodies positive so patient is having acute Hepatitis E. In co-infection, both Hepatitis E and Hepatitis B infection occurs simultaneously. In the given question, hepatitis B is chronic and hepatitis E is acute, so it favors superinfection of hepatitis E on hepatitis B



86. A patient with previously normal haemoglobin suffered a sudden massive acute hemorrhage. He is most likely to show all of the following except:

a) High reticulocyte count

b) High neutrophil count

c) High packed cell volume

d) Low mean corpuscular volume

Correct Answer - C

Ans. c. High packed cell volume

Packed cell volume

- Packed cell volume (PCV) or hematocrit determines the percentage of red blood cells in the plasma.
- *Decrease in hematocrit PCV in the early hours after acute hemorrhage is usually the result of volume resuscitation rather than ongoing blood loss.*
- The body adjusts to severe hemorrhage by expanding the circulating volume at the expense of extravascular fluid. However, within several hours after hemorrhage plasma volume begins to increase due to shift of interstitial fluid into vascular space
- RBCs cannot be replaced quickly as the bone marrow takes approximately ten days to produce mature RBCs. As a result *PCV done several hours after bleeding episode will show more accurate picture of the hematocrit (Le. decreased PCV).*
- The changes in hematocrit show poor correlation with blood volume deficits and erythrocyte deficits in acute hemorrhage.

87. The treatment of a patient with myocardial infarction is thrombolytic therapy, if the patient presents within hours of chest pain:

a) 6 hours

b) 12 hours

c) 18 hours

d) 24 hours

Correct Answer - B

Ans. c. 12 hours

(Ref Harrison 19/e p1602, 18/e p2027-2029)

The treatment of a patient with myocardial infarction is thrombolytic therapy, if the patient presents within 12 hours of chest pain.

Successful thrombolysis leads to reperfusion with relief of pain and resolution of acute ST elevation.

It is indicated only in patients presenting within 12 hrs of the onset of symptoms and with ECG changes of LBBB or ST segment elevation of > 1 mm in the limb leads or 2 mm in the chest leads.

"Management of Patients with ST-segment Elevation Myocardial Infarction: In the absence of contraindications, it is reasonable to administer fibrinolytic therapy to patients with symptoms of STEMI beginning within the prior 12 to 24 hours who have continuing ischemic symptoms and electrocardiographic evidence of STEMI. Fibrinolytic therapy should not be administered to asymptomatic patients whose initial symptoms of STEMI began more than 24 hours earlier nor to patients whose 12-lead ECG shows only ST-segment depression, except if a true posterior myocardial infarction

(MI) is suspected."

88. Which of the following regarding small vessel disease (SVD), cerebral amyloid angiopathy (CAA) and Alzheimer's disease (AD) is not true?

a) SVD is related to CAA

b) SVD is not correlated to AD

c) SVD is related to AD

d) CAA is associated with AD

Correct Answer - C

Ans. c. SVD is related to AD

In dementia, both small vessel disease (SVD) and large vessel disease are found. But Alzheimer's disease is caused by involvement of large vessels, while subcortical dementia like progressive supranuclear palsy (PSP) involves small vessels." "The term "small vessel" is used for small penetrating branches that arise at acute angles from the large arteries of circle of Willis, stem of the middle cerebral artery and the basilar artery. These arteries penetrate at right angles to supply the deeper structures within the brain e.g. basal ganglia, internal capsule, thalamus, pons. These arteries are prone to thrombosis and are common causes of ischemic stroke.

"With normal aging, there is also an accumulation of amyloid in cerebral blood vessels, leading to a condition called cerebral amyloid angiopathy (without dementia), which predisposes older persons to lobar hemorrhage and brain micro-hemorrhages (Small vessel disease). AD patients appear to be at increased risk for amyloid angiopathy, and this may explain some of the observed

association between AD and stroke.”-

"Cerebral amyloid angiopathy (CAA), although usually asymptomatic, is an important cause of primary lobar intracerebral hemorrhage in the elderly. It can occur as a sporadic disorder, sometimes in association with AD, or as a certain familial syndrome. CAA is characterized by deposition of cognophilic material in small to medium-sized blood vessels of the brain and leptomeninges. In its most severe stages, the amyloid deposits cause breakdown of the blood vessel wall with resultant hemorrhage

89. A 40-year old female presented with dyspnoea on exertion grade III and palpitations. ECG showed atrial fibrillation with fast ventricular rate. Echocardiography shows severe mitral stenosis with left atrial appendage clot. Which of the following is not advised?

a) Diltiazem to control ventricular rate

b) Start warfarin and follow-up with repeat echocardiography

c) EC followed by percutaneous balloon mitral valvuloplasty

d) Open mitral commissurotomy with clot removal

Correct Answer - C

Ans. c. EC followed by percutaneous balloon mitral valvuloplasty
(Ref Harrison 19/e p1539, 18/e p1932)

"Percutaneous mitral balloon valvotomy has subsequently become a mainstay of the management of rheumatic mitral stenosis. In the past, closed or open commissurotomy (after the advent of cardiopulmonary bypass) was the mainstay of therapy for rheumatic mitral stenosis.

The dumbbell-shaped Inoue balloon catheter allows stable and sequential dilation of the stenotic mitral valve. A favourable response to mitral dilation is predicated on the presence of fused mitral commissures, as seen in rheumatic disease.

90. Most common clinical presentation of juvenile myoclonic epilepsy

a) Generalised tonic clonic seizures in sleep

b) Generalised tonic clonic seizures in awake state

c) Myoclonus

d) Absence seizures

Correct Answer - C

Ans. c. Myoclonus

The most common clinical presentation of juvenile myoclonic epilepsy is myoclonus.

- "Juvenile myoclonic epilepsy (JME) is a generalized seizure disorder of unknown cause that appears in early adolescence and is usually characterized by bilateral myoclonic jerks that may be single or repetitive. The myoclonic seizures are most frequent in the morning after awakening and can be provoked by sleep deprivation. Consciousness is preserved unless the myoclonus is especially severe."
- **Juvenile Myoclonic Epilepsy**
- Juvenile myoclonic epilepsy (JME) is a generalized seizure disorder of unknown cause that appears in early adolescence
- Characterized by bilateral myoclonic jerks that may be single or repetitive.
- **Clinical Features:**
- Myoclonic seizures are most frequent in the morning after awakening and can be provoked by sleep deprivation.
- Consciousness is preserved unless the myoclonus is especially severe.
- Many patients also experience generalized tonic-clonic seizures, and up to one-third have absence seizures.

- Although complete remission is relatively uncommon, the seizures respond well to appropriate anticonvulsant medication.
- There is often a family history of epilepsy, and genetic linkage studies suggest a polygenic cause

Juvenile Myoclonic Epilepsy

Treatment:

- Valproate is often used to treat juvenile myoclonic epilepsy.
- Other epilepsy drugs are effective in juvenile myoclonic epilepsy:
 - **levetiracetam**
 - **topiramate**
 - **lamotrigine**
- For most people with JME, treatment is long-term, and often lifelong.
- However, treatment is effective, allowing most people with juvenile myoclonic epilepsy to go five years or more between seizures.

91. All of the following are correctly matched except

a) Neurofibromatosis - renal artery stenosis

b) Moyamoya disease - aortic aneurysm

c) Marfan's disease - dural ectasia

d) Mulibreyaniam - constrictive pericarditis

Correct Answer - B

Ans. b. Moyamoya disease - aortic aneurysm

92. The most common form of spinocerebellar ataxia (SCA) in India is

a) SCA1

b) SCA2

c) SCA3

d) SCA4

Correct Answer - B

Ans. b. SCA2

- The most common form of spinocerebellar ataxia (SCA) in India is SCA2.

Spinocerebellar Ataxia type 1 MC spinocerebellar ataxia in South

Spinocerebellar Ataxia type 2 MC spinocerebellar ataxia in India

Spinocerebellar Ataxia type 3 MC spinocerebellar ataxia in World

93. In metabolic encephalopathy, EEG will most likely show:

a) Alpha activity

b) Beta activity

c) Gamma activity

d) Delta activity

Correct Answer - D

Ans. d. Delta activity

Rej Gunang 24/e p273, & upon 11/741-743, .SurnAan a, ight,) 13re p315-318) In metabolic encephalopathy, EEG will most likely show delta activity.

"In metabolic encephalopathy, Delta waves are seen predominantly due to a decrease in the consciousness."

94. Two patients presented with significant atherosclerosis. One had significant comorbid diabetes and the other is non-diabetic. The incidence of which of the following is increased 100 times in the patients having diabetes, when both are compared?

a) Myocardial infarction

b) Ischemic stroke

c) Lower limb ischemia

d) Vertebrobasilar insufficiency

Correct Answer - C

Ans. c. Lower limb ischemia

Diabetes mellitus induces hypercholesterolemia and markedly increases the risk of atherosclerosis. Other factors being equal, the incidence of myocardial infarction is twice as high in diabetics as in nondiabetics. There is also an increased risk of strokes and a 100-fold increased risk of atherosclerosis-induced gangrene of the lower extremities."- Robbins 9/e p493

95. While assessing the risk of fatality among adults from the Pneumonia Severity Index, which of the following factor is most important

a) Age

b) Presence of congestive Heart Failure

c) Hypothermia

d) Hyponatremia

Correct Answer - A

Ans. a. Age

Ref Harrison 19/e p806, 807, 18/e p2133-2134) Most important factor while assessing the risk of fatality among adults from the Pneumonia Severity Index is age.

Pneumonia Severity Index (PSI)

A prognostic model used to **identify patients at low risk of dying.**

The PSI is less practical in a busy emergency room setting because of the need to assess 20 variables.

Only decision aid for risk stratification

with patients of CAP°

96. Pseudotumor cerebri is most commonly seen in

a) Obese females in the age group 20-45 years

b) Obese males in the age group 20-45 years

c) Thin built females in the age group 50-60 years

d) Thin built males in the age group 50-60 years

Correct Answer - A

Ans. a. Obese females in the age group 20-45 years

- Pseudotumor cerebri is most commonly seen in obese females in the age group 20-45 years.

Pseudotumor Cerebri (Idiopathic Intracranial Hypertension)

- Benign self-limiting disorder with a favorable outcome
- Majority of patients are young, female and obese
- It occurs due to decreased CSF absorption

Mostly idiopathic in nature but seen in hypervitaminosis, expired tetracyclines, OCPs and steroid use

Causes of Pseudotumor Cerebri

High doses of vitamin A ^Q	Withdrawal of corticosteroid therapy ^Q
--------------------------------------	---

Outdated Tetracycline ^Q	Addison's disease ^Q
------------------------------------	--------------------------------

Quinolones ^Q	SLE ^Q
-------------------------	------------------

Hypoparathyroidism^Q

Clinical Features:

- Manifested by headache, papilledema, normal CSF and normal

ventricle size on imaging.

- No focal neurological signs

Characteristic features of Pseudotumor Cerebri

Elevated intracranial pressure (intracranial hypertension) with:

- Normal or Small sized ventricular system^Q
- No focal neurological signs
- Papilledema^Q(enlarged blind spot in visual field)
- Normal CSF findings
- Normal CT scan, MRI and isotope brain scan
- Excessive slow-wave activity on EEG

Treatment:

- Carbonic anhydrase inhibitor (acetazolamide) lowers ICP by reducing the production of CSF.
- Weight reduction is vital but often unsuccessful.
- If acetazolamide and weight loss fail and visual field loss is progressive, a shunt should be performed without delay to prevent blindness.
- Occasionally, emergency surgery is required for sudden blindness caused by fulminant papilledema

97. A 25-year-old person with history of repeated episodes of Rheumatic fever is hypersensitive to penicillin. Which of the following drug can be prescribed to him

a) Penicillin G

b) Sulfisoxazole

c) Sulfasalazine

d) Streptomycin

Correct Answer - B

Ans. b. Sulfisoxazole

(Ref Harrison 19/e p2153, 18/e p2756: Goodman Gilman 12/e p1491)

Sulfisoxazole is an alternative for penicillin-allergic patients, can be prescribed to patients with history of repeated episodes of rheumatic fever, who is hypersensitive to penicillin

98. A person presents with following parameters PCO₃- 30 mm of Hg, P0₂- 105 mm of Hg, pH-7.45 is having partially compensated

a) Metabolic acidosis

b) Metabolic alkalosis

c) Respiratory acidosis

d) Respiratory alkalosis

Correct Answer - D

Ans. d. Respiratory alkalosis

- In the question, pH is 7.45 and PCO₂ is 30 mm Hg. Overall change is slightly alkaline. Respiratory change is also alkaline. So the diagnosis is respiratory alkalosis

Acid Base Disorders

pH < 7.35 is acidosis; pH > 7.45 is alkalosis

1° change in HCO₃ is termed as Metabolic (Normal HCO₃= 22-30 mEq/l)

- If change in HCO₃ is in keeping with the pH (i.e. if there is acidosis and HCO₃ is decreased) the problem is metabolic one.
 - If change in HCO₃ is opposite with the pH (i.e. if there is acidosis and HCO₃ is increased or normal) the problem
- 1° change in CO₂ is termed as Respiratory (Normal CO₂= 35-45 mEq/l)**
- If change in CO₂ is in keeping with the pH (i.e. if there is acidosis and CO₂ is increased) the problem is respiratory.
 - If change in CO₂ is in opposite with the pH (i.e. if there is acidosis and CO₂ is decreased or normal) the problem is termed as

compensatory respiratory

99. A 60 year old male had a sudden fall in toilet. His BP was 90/50 mm Hg and pulse was 100/mm. His relatives reported that his stool was black/dark in colour. Further careful history revealed that he is a known case of hypertension and coronary artery disease and was regularly taking aspirin, atenolol and sorbitrate. The most likely diagnosis is:

a) Gastric ulcer with bleeding

b) Acute myocardial infarction with cardiogenic shock

c) Acute cerebrovascular accident

d) Pulmonary embolism

Correct Answer - A

Ans. a. Gastric ulcer with bleeding

In the given question, the 60-year old patient is presenting with black stool (melena) due to G.I. blood loss, history of aspirin use. So the diagnosis is most probably NSAID induced peptic ulcer disease.

"GI bleeding is the most common complication observed in PUD. It occurs in ~15% of patients and more often in individuals >60 years of age. The mortality rate is as high as 5-10%. The higher incidence in the elderly is likely due to the increased use of NSAIDs in this group. Up to 20% of patients with ulcer-related hemorrhage bleed without any preceding warning signs or symptoms."- Harrison 18/e p2444

100. A study of skin biopsy of SLE patient using RTC labeled human IgG antiserum shows deposition of irregular particles at dermoepidermal junction. This means there is presence of

a) Anti-nuclear antibody

b) Anti-collagen antibody

c) Anti-epithelial antibody

d) Immune complex deposits

Correct Answer - D

Ans. d. Immune complex deposits

Ref Harrison 19/e p2124, 18/e p2725: Lever's Histopathology of Skin 10/e p70-71)

Skin biopsy of SLE patient using FITC labeled human IgG antiserum shows deposition of irregular particles at dermoepidermal junction, that is immune complex deposits.

101. Which of the following is associated with an intrinsic defect in the RBC membrane?

a) Autoimmune hemolytic anemia

b) Hereditary spherocytosis

c) Microangiopathic hemolytic anemia

d) Thermal injury anemia

Correct Answer - B

Ans. b. Hereditary spherocytosis

(Ref: Harrison 19/e p651, 18/e p872, 873; Robbins 9/e p632-634, 8/e p642)

Hereditary spherocytosis is associated with an intrinsic defect in the RBC membrane

Initial Treatment of group-A Beta-hemolytic Streptococcal Pharyngitis (adult dosages)

Antibiotic	Dose	Frequency	Duration	Comments	Class
Penicillin V	500 mg PO	Twice daily	10 days		I
Amoxicillin	1000 mg PO	Daily	10 days		I
Penicillin allergic					
Narrow-spectrum cephalosporins*	Varies by drug	Varies by drug	10 days	Avoid if history of ana?	phylaxis secondary

**to
penicillin**

Clindamycin	300 mg PO	Twice daily	10 days	Ila
Azithromycin	500 mg PO day 1 250 mg PO days 2-5	Daily	5 days	Ila
Clarithromycin	250 mg PO	Twice daily	10 days	Ila

102. Fever blisters can occur due to:

a) HHV-6

b) Varicella Zoster virus infection

c) Primary HSV-1 infection

d) Reactivation of HSV-1

Correct Answer - D

Ans. d. Reactivation of HSV-1

- Fever blisters can occur due to reactivation of HSV-1. Oral vesicular lesions of mouth (fever blisters, cold sores) are more commonly associated with recurrent infection than the primary infection.
- "The most common site of cutaneous herpes infection is the face-on the cheeks, chin, around the mouth or on the forehead.
- Lesions may also appear on the buttocks in infants as 'napkin rash'. The typical lesion is the 'fever blister' caused by viral reactivation in febrile patients."
- **Herpes Simplex Virus:**
- HSV-1 causes cold sores; HSV-2 causes genital herpes.
- **Primary Infection**
- Inoculation of HSV-1 at mucosal surfaces or skin.
- sites permit entry of the virus into the epidermis, the dermis and eventually to sensory and autonomic nerve endings.
- Sudden onset with the appearance of multiple characteristic vesicular lesions superimposed upon an inflammatory erythematous base.
- Associated with systemic symptoms such as fever and malaise.
- Cold sores with symptoms:
- Painful blisters on the mouth, nose or throat.
- Mouth and throat pain.

- lymphadenopathyFever and body ache.
- Gingivostomatitis and pharyngitis are the most frequent clinical manifestation of the first episode of HSV-1 infection.
- **Recurrent Infection**
- Once HSV infection has occurred, the virus lies in a latent state in nerve cell bodies in ganglion and can reactivate.
- Severity and number of lesions are considerably less with reactivation.
- Rarely associated with systemic signs or symptoms.
- Oral vesicular lesions of the mouth (fever blisters, cold sores) are more commonly associated with recurrent infections than primary infections.
- Herpes labialis (cold sore) is the most frequent sign of reactivation disease.
- Involvement of the oral cavity and lips are common, most patients develop prodromal symptoms about 24 hours before the appearance of painful lesions at the lip borders.

103. A female of 40 years presenting with intolerance to cold, constipation and hoarseness of voice was found to have cardiomegaly on chest roentgenogram. Which of the following investigations is the best to determine the cause of her cardiomegaly?

a) Coronary angiography

b) Left ventricular angiography

c) Right ventricular angiography

d) Echocardiography

Correct Answer - D

Ans. d. Echocardiography

Echocardiography (Ref. Harrison 19 '270e-I, 18/e p1842, 184)
Echocardiography is the . best investigation to determine the cause of cardiomegaly.

- Produces high-resolution tomographic images of cardiac structures and their movements.
- Qualitative and quantitative measurements of cardiac dimensions, area, and volume are derived from two-dimensional images or M-mode recordings derived from two-dimensional images

104. An elderly male presented with headache, fever and hemiparesis of right side. On further examination and investigation a diagnosis of brain abscess was made. Which of the following antibacterial/ antibiotics is effective in this patient

a) Gentamicin

b) Doxycycline

c) Streptomycin

d) A combination of cephalosporin and metronidazole

Correct Answer - D

Ans. d. A combination of cephalosporin and metronidazole

- Empirical therapy of community-acquired brain abscess in an immunocompetent patient typically includes a third-or fourth-generation cephalosporin (e.g. cefotaxime, ceftriaxone or cefepime) and metronidazole
 - "Optimal therapy of a brain abscess involves a combination of high dose parenteral antibiotics and neurosurgical drainage. Empirical therapy of community-acquired brain abscess in an immunocompetent patient typically includes a third-or fourth-generation cephalosporin (e.g. cefotaxime, ceftriaxone or cefepime) and metronidazole."- Harrison 18/e p3429
- Brain Abscess**
- Intracerebral abscess may occur as a result of direct spread from air sinus infection, following surgery or from hematogenous spread

especially associated with respiratory infection, endocarditis or dental infection^Q.

- Increased risk of abscess in: Cyanotic heart disease, immunocompromised (diabetes, solid organ transplant, hematological malignancy or long-term steroids)^o
- Organisms: *Streptococci (MC)*, *Bacteroides*, *Pseudomonas*, *Hemophilus* and *Enterobacteriaceae*

Etiology	Location
Otitis media, mastoiditis	Temporal lobe >Cerebellum
Paranasal sinusitis, dental infections	Frontal lobes ^o
Hematogenous	Parietal lobe ^o

Clinical Features:

- Presentation is with focal signs, seizures and raised ICP, as with other mass lesions, but the time course is often short^Q.
- Patients may be febrile or have a raised peripheral white cell count or inflammatory markers

Diagnosis:

- CT scan: Ring-enhancing mass lesion (may be multiple in case of hematogenous spread)^Q

Treatment:

- Surgical drainage + IV antibiotics for at least 6 weeks^Q
- Multiple small abscesses may be treated medically with antibiotics targeted against organisms

Brain Abscess

- Steroids are reserved for cases with significant edema or mass effect^Q
- Owing to the high risk of seizures, patients should also be treated with anticonvulsants
- *Optimal therapy of a brain abscess involves a combination of high dose parenteral antibiotics and neurosurgical drainage.*
- *Empirical therapy of community-acquired brain abscess in an immunocompetent patient typically includes a third- or fourth-generation cephalosporin (e.g. cefotaxime, ceftriaxone or cefepime)*

and metronidazole.

105. A 45-year-old female is diagnosed as a case of pneumococcal meningitis. Her blood sample were sent for culture sensitivity. In the mean time best drug to start as an empirical treatment is

a) Penicillin G

b) Doxycycline

c) Streptomycin

d) Vancomycin + ceftriaxone

Correct Answer - D

Ans. d. Vancomycin + ceftriaxone

Antimicrobial therapy of pneumococcal meningitis is initiated with a cephalosporin (ceftriaxone, cefotaxime, or cefepime) and vancomycin.

"Antimicrobial therapy of pneumococcal meningitis is initiated with a cephalosporin (ceftriaxone, cefotaxime, or cefepime) and vancomycin. For *S. pneumoniae* meningitis, an isolate of *S. pneumoniae* is considered to be susceptible to penicillin with a minimal inhibitory concentration (MIC) 1.0 mg/mL. Isolates of *S. pneumoniae* that have cephalosporin MICs 2 mg/mL are considered resistant. For meningitis due to pneumococci, with cefotaxime or ceftriaxone MICs 1 mg/mL, vancomycin is the antibiotic of choice. Rifampin can be added to vancomycin for its synergistic effect but is inadequate as monotherapy because resistance develops rapidly when it is used alone. "-

"A 2-week course of intravenous antimicrobial therapy is recommended for pneumococcal meningitis."

"Patients with penicillin- and cephalosporin-resistant strains of *S. pneumoniae* who do not respond to intravenous vancomycin alone may benefit from the addition of intraventricular vancomycin. The intraventricular route of administration is preferred over the intrathecal route because adequate concentrations of vancomycin in the cerebral ventricles are not always achieved with intrathecal administration."

Antimicrobial Therapy of CNS Bacterial Infections Based on Pathogens

Organism	Antibiotic
<i>Neisseria meningitides</i>	
Penicillin-sensitive	Penicillin G or ampicillin ^Q
Penicillin-resistant	Ceftriaxone or cefotaxime ^Q
<i>Streptococcus pneumoniae</i>	
Penicillin-sensitive	Penicillin G ^Q
Penicillin-intermediate	Ceftriaxone or cefotaxime or cefepime
Penicillin-resistant	(Ceftriaxone or cefotaxime or cefepime) vancomycin ^Q
Gram-negative bacilli (except <i>Pseudomonas</i> spp.)	Ceftriaxone or cefotaxime ^Q
<i>Pseudomonas aeruginosa</i>	Ceftazidime or cefepime or meropenem ^Q
<i>Staphylococci</i> spp.	
Methicillin-sensitive	Nafcillin ^Q
Methicillin-resistant	Vancomycin ^Q
<i>Listeria monocytogenes</i>	Ampicillin + gentamicin ^Q
<i>Haemophilus influenzae</i>	Ceftriaxone or cefotaxime or cefepime ^Q
<i>Streptococcus agalactiae</i>	Penicillin G or ampicillin ^Q
<i>Bacteroides fragilis</i>	Metronidazole ^Q
<i>Fusobacterium</i> spp.	Metronidazole ^Q

106. Which of the following is most likely to be affected in an aneurysm of posterior cerebral artery (PCA)?

a) Hypophysis cerebri

b) Trochlear nerve

c) Oculomotor nerve

d) Optic nerve

Correct Answer - C

Ans. c. Oculomotor nerve (Ref Harrison 19/e p1784, 18/e p2262)

Oculomotor nerve is most likely to be affected in an aneurysm of posterior cerebral artery (PCA).

Occipital and posterior cervical pain may signal a posterior inferior cerebellar artery or anterior inferior cerebellar artery aneurysm.

Pain in or behind the eye and in the low **temple can occur with an expanding MCA aneurysm.**"- Harrison 18/e p2262

107. An elderly female presents to the emergency department and was found to have a transmural myocardial infarction. Based on her ECG, she was started on thrombolytic therapy with streptokinase. On further examination, which of the following findings would indicate that the thrombolytic therapy is risky and should be stopped

a) Pericardial friction rub

b) Mobitz Type II block

c) Significant pericardial effusion on echocardiography

d) Lower limb vein thrombosis

Correct Answer - C

Ans. c. Significant pericardial effusion on echocardiography
Fibrinolytics and anticoagulants can be continued in case of pericarditis, however, once significant pericardial effusion develops after MI, fibrinolytics should be discontinued

"The risk of post MI pericardial effusion is not increased with the use of fibrinolytic agents, heparin, aspirin and other antiplatelet agents. In contrast, a pericardial effusion occurring in the setting of MI is an indication to discontinue anticoagulation and fibrinolytics.

Fibrinolytic Therapy

Absolute Contraindications

- History of cerebrovascular hemorrhage at any time^Q

- A non-hemorrhagic stroke or other cerebrovascular event within the past year^Q
- Marked hypertension (reliably determined systolic arterial pressure ≥ 180 mm Hg and/or a diastolic pressure ≥ 110 mm Hg) at any time during the acute presentation, suspicion of aortic dissection, and active internal bleeding (excluding menses).^Q

Relative Contraindications

- Current use of anticoagulants^Q (INR ≥ 2)
- A recent (< 2 weeks) invasive or surgical procedure or prolonged ($>$ cardiopulmonary resuscitation)^Q
- Known bleeding diathesis^Q
- Pregnancy^Q
- A hemorrhagic ophthalmic condition (e.g., hemorrhagic diabetic retinopathy) or active peptic ulcer disease^Q
- A history of severe hypertension that is currently inadequately^Q
- Allergic reactions to streptokinase^Q

108. A 60-year old female presented with decreased movements for the last 2 years with rigidity and vertical large square wave jerks. The most likely diagnosis is:

a) Parkinson's disease

b) Lewy body dementia

c) Multisystem atroph

d) Progressive supranuclear palsy

Correct Answer - D

Ans. d. Progressive supranuclear palsy

The most likely diagnosis in a 60-year old female presenting with decreased movements for the last 2 years with rigidity and vertical large square wave jerks is progressive supranuclear palsy.

"Progressive supranuclear palsy should be considered whenever a middle aged or elderly person presents with history of repeated falls and has an extrapyramidal syndrome accompanied by nuchal dystonia and paralysis of voluntary down gaze."

Parkinson's disease

- A degenerative disorder caused by degeneration of substantia nigra (pars compacta), and idiopathic in etiology.
- Clinical feature: Tremors, rigidity and bradykinesia.

Lewy body dementia

- Progressive cognitive decline and dementia are essential for diagnosis
- Other features: fluctuating cognition, recurrent well formed detailed

visual hallucinations, spontaneous features of Parkinsonism

Multisystem atrophy

Characterized by:

- Autonomic failure involving urinary incontinence or an orthostatic decrease of blood pressure within 3 min of standing by at least 30 mm Hg systolic or 15 mm Hg diastolic,
- Poorly levodopa responsive parkinsonism
- Cerebellar syndrome (gait ataxia with cerebellar dysarthria, limb ataxia or cerebellar oculomotor dysfunction)

Progressive supranuclear palsy

- Marked impairment of voluntary downward gaze and horizontal gaze.^Q
- Extended rather than flexed dystonic posturing^Q
- Absence of tremor^Q
- Poor response to antiparkinsonian medication^Q

Supranuclear Gaze Palsy (Steel-Richardson syndrome)

- A degenerative disorder where in there occurs loss of neurons in midbrain, pons, basal ganglion and cerebellum
- "Progressive supranuclear palsy should be considered whenever a middle aged or elderly person presents with history of repeated falls and has an extrapyramidal syndrome accompanied by nuchal dystonia and paralysis of voluntary down gaze

Factors which distinguish this from Parkinson's

- Marked impairment of voluntary downward gaze and horizontal gaze.^Q
- Extended rather than flexed dystonic posturing^Q
- Absence of tremor^Q
- *Poor response to antiparkinsonian medication^Q*

109. All except one are true for hepatitis B:

a) Vertical transmission is more important than horizontal

b) Age of onset determines prognosis

c) Period of communicability lasts several months

d) Virus can be found in blood one month before

Correct Answer - A

Ans. a. Vertical transmission is more important than horizontal
"According to American journal of gastroenterology, the most common mode of transmission of hepatitis B in the world is horizontal transmission

Hepatitis B Virus

- The mode of transmission of HBV depends upon the prevalence of hepatitis B in the region.
- Only serum, saliva and semen is truly infectious^Q
- Children usually acquire infection indirectly^Q, through parenteral route from hepatitis B virus contaminated blood transfusion^o.
- Adolescent boys and girls may acquire the virus through sexual contact with an infected partner.
- HBsAg positive mothers may infect their fetus in third trimester or during early post-partum period. Only 5-10% are infected in utero, rest at the time of delivery^Q.
- Association of HBeAg in maternal blood is correlated with a high transmission rate^Q.

HBV Transmission

In Endemic areas	In areas with Low Prevalence
Vertical	Transmission is generally

transmission^Q horizontal (percutaneous,
sexual^Q)

Most
individuals
are infected
perinatally by
vertical
transmission

Prognosis:

- Most acute infections in hepatitis B produce no symptoms and clear spontaneously^Q.
- Only few individuals develop chronic disease or some serious complications^Q
- The rate of progression to chronic infection, cirrhosis or HCC depends upon several factors, most important of which is age at the time of infection and immune status at the time of infection^Q

110. A young male patient who is a case of schizophrenia was started on haloperidol 5 mg. On 3rd day, he came to the hospital accompanied by his father with uprolling of both eyes. A complete neurological examination revealed no spasticity or any other abnormalities. Visual acuity was found to be normal. Most likely diagnosis is:

a) Acute dystonia

b) Seizures

c) Malingering

d) Akathisia

Correct Answer - A

Ans. a. Acute dystonia

Acute Muscular Dystonia:

Bizarre muscle spasms, mostly involving linguo-facial muscles-grimacing, torticollis, locked jaw

Occurs within few hours of single dose or at the most in the first week of therapy

More common in children below 10 years and in girls, particularly after parenteral administration

Treatment: Central anticholinergico, promethazine or hydroxyzine

111. Which of the following is not a component of SIRS?

a) Oral temperature $>38^{\circ}\text{C}$

b) Urine output $< 1\text{ml/kg/hour}$

c) Respiratory rate $>24/\text{minute}$

d) Systolic blood pressure

Correct Answer - B

Ans. b. Urine output $< 1\text{ml/kg/hour}$

'systemic inflammatory response syndrome (SIRS) is characterized by Two or more of the following conditions: (1) Fever (oral temperature $>38^{\circ}\text{C}$) or hypothermia ($<36^{\circ}\text{C}$); (2) Tachypnea (>24 breaths/min); (3) Tachycardia (heart rate >90 beats/min); (4) Leukocytosis ($>12,000/\text{p,L}$), leucopenia ($<4,000/\text{tL}$), or $>10\%$ bands; may have a noninfectious etiology

112. 45-year-old presents with persistent productive cough and clubbing. On auscultation, wheeze and crackles are present. Which is the most specific investigation to confirm the diagnosis?

a) HRCT

b) Bronchoscopy with bronchoalveolar lavage

c) Chest X-ray

d) MRI

Correct Answer - A

Ans. a. HRCT

Persistence of a productive cough, clubbing, wheeze, and crackles is suggestive of bronchiectasis. HRCT is the diagnostic procedure of choice (most specific).

HRCT findings in bronchiectasis:

- Airway dilation (detected as parallel “tram tracks” or as the “signet-ring sign”).
- Lack of bronchial tapering
- Bronchial wall thickening in dilated airways
- Impassated secretions (e.g., the “tree-in-bud” pattern)
- Cysts emanating from the bronchial wall (especially pronounced in cystic bronchiectasis)

113. A girl child came with complaints of involuntary movements was diagnosed as a case of Sydenham's chorea, suggestive of a diagnosis of acute rheumatic fever. There is no complaint of carditis or arthritis. Throat culture is negative. Which of the following will most likely suggest recent streptococcal infection?

a) ASLO

b) Antistreptolysin S

c) PCR for M protein

d) Anti-hyaluronidase

Correct Answer - A

Ans. a. ASLO

ASLO is a marker for recent streptococcal infection.

'supporting evidence of a preceding streptococcal infection within the last 45 days: Elevated or rising anti-streptolysin

O or other streptococcal antibody, or A positive throat culture, or

Rapid antigen test for group A streptococcus, or Recent scarlet fever.

114. A patient was on treatment with penicillin. He developed pallor but there was no shortness of breath, urticaria or wheezing. On investigation, antibodies against penicillin were found in his blood. What is the type of hypersensitivity reaction that most likely occurred in this patient?

a) Type I hypersensitivity

b) Type II hypersensitivity

c) Type III hypersensitivity

d) Type IV hypersensitivity

Correct Answer - B

Ans. B. Type II hypersensitivity

An example of **type II hypersensitivity** is the reaction to **penicillin** wherein the drug can bind to red blood cells, causing them to be recognized as different; B cell proliferation will take place and antibodies to the drug are produced.

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115. Inability to perform physical activity without discomfort falls under

a) NYHA class 1

b) NYHA class 2

c) NYHA class 3

d) NYHA class 4

Correct Answer - D

Ans. d. NYHA class 4

Class IV Patients with cardiac disease resulting in inability to carry on any physical activity without discomfort.

Symptoms of heart failure or the anginal syndrome may be present even at rest.

If any physical activity is undertaken, discomfort is increased

116. Which of the following is not an indicator of chronic congestive heart failure?

a) CRP

b) Sirtuin

c) Brain natriuretic peptide

d) Troponin

Correct Answer - B

Ans. b. Sirtuin

Sirtuins have been implicated in influencing a wide range of cellular processes like aging, transcription, apoptosis, inflammation and stress resistance, as well as energy efficiency and alertness during low-calorie situations. Sirtuins can also control circadian clocks and mitochondrial biogenesis.

Circulating levels of natriuretic peptides are useful adjunctive tools in the diagnosis of patients with HE. Both B-type natriuretic peptide (BNP) and N-terminal pro-BNP, which are released from the failing heart, are relatively sensitive markers for the presence of HF with depressed EF. They also are elevated in HF patients with a preserved EF, albeit to a lesser degree. However, it is important to recognize that natriuretic peptide levels increase with age and renal impairment, are more elevated in women, and can be elevated in right HF from any cause. Levels can be falsely low in obese patients and may normalize in some patients after appropriate treatment. Other biomarkers, such as troponin T and I, C-reactive protein, TNF receptors, and uric acid, may be elevated in HF and provide important prognostic information. Serial measurements of one or more biomarkers ultimately may help guide therapy in HF, but they are not currently recommended for this purpose.

Biomarkers in Heart Failure

- Circulating levels of natriuretic peptides are useful adjunctive tools in the diagnosis of patients with HF
- Both B-type natriuretic peptide (BNP) and N-terminal pro-BNP, which are released from the failing heart, are relatively sensitive markers for the presence of HF with depressed EF; they also are elevated in HF patients with a preserved EF, albeit to a lesser degree^Q
- However it is important to recognize that natriuretic peptide levels increase with age and renal impairment are more in women, and can be elevated in right HF from any cause.
- Levels can be falsely low in obese patients and may normalize in some patients after appropriate treatment
- Other biomarkers, such as troponin T and I, C-reactive protein, TNF receptors, and uric acid, may be elevated in HF and provide important prognostic information^Q.

117. A 30-year-old man presents to the emergency with complaints of muscle weakness, nausea, vomiting and fatigue. ECG showed tall peaked T waves, prolonged PR interval, wide QRS and absent P wave. Which of the following drugs is not used in management?

a) Beta-blockers

b) Sodium bicarbonate

c) Calcium gluconate

d) Insulin

Correct Answer - A

Ans. a. Beta-blockers

Complaints of muscle weakness, nausea, vomiting and fatigue and ECG showing tall peaked T waves, prolonged PR interval, wide QRS and absent P wave is suggestive of Hyperkalemia- Beta-agonists are used in the management of hyperkalemia, not the beta-blockers

118. High calcium intake leads to

a) Milk-Alkali syndrome

b) Cardiomyopathy

c) Osteoporosis

d) Osteopetrosis

Correct Answer - A

Ans. a. Milk-Alkali syndrome

The milk-alkali syndrome is due to excessive ingestion of calcium and absorbable antacids such as milk or calcium carbonate. It is much less frequent since proton-pump inhibitors and other treatments became available for peptic ulcer disease. For a time, the increased use of calcium carbonate in the management of secondary hyperparathyroidism led to reappearance of the syndrome. The chronic form of the disease, termed Burnett's syndrome, is associated with irreversible renal damage. The acute syndromes reverse if the excess calcium and absorbable alkali are stopped.'

Milk-Alkali Syndrome

- The milk-alkali syndrome is due to excessive ingestion of calcium and absorbable antacids such as milk or calcium carbonate^Q.
- It is much less frequent since proton-pump inhibitors and other treatments became available for peptic ulcer disease.
- For a time, the increased use of calcium carbonate in the management of secondary hyperparathyroidism led to reappearance of the syndrome.
- Several clinical presentations-acute, subacute, and chronic-have been described, all of which feature hypercalcemia, alkalosis, and renal failure^Q.

- The chronic form of the disease, termed Burnett's syndrome, is associated with irreversible renal damage^Q.
- The acute syndromes reverse if the excess calcium and absorbable alkali are stopped^Q.
- Individual susceptibility is dependent on the fractional calcium absorption as a function of calcium intake.
- Some individuals absorb a high fraction of calcium, even with intakes >2 g of elemental calcium per day, instead of reducing calcium absorption with high intake, as occurs in most normal individuals.
- Development of hypercalcemia causes increased sodium excretion and some depletion of total-body water.
- These phenomena and perhaps some suppression of endogenous PTH secretion due to mild hypercalcemia lead to increased bicarbonate resorption and to alkalosis in the face of continued calcium carbonate ingestion
- Alkalosis per se selectively enhances calcium resorption in the distal nephron, thus aggravating the hypercalcemia.
- The cycle of mild hypercalcemia → bicarbonate retention alkalosis renal calcium retention → severe hypercalcemia perpetuates and aggravates hypercalcemia and alkalosis as long as calcium and absorbable alkali are ingested^Q.

119. Which of the following drug is not active against Hepatitis B?

a) Interferon

b) Telbivudine

c) Zidovudine

d) Lamivudine

Correct Answer - C

Ans. c. Zidovudine

Drugs Approved for Treatment of Chronic Hepatitis B

Oral

Entecavir (Drug of Choice)

Lamivudine

Telbivudine

Emtricitabine

Adefovir

Tenofovir

Subcutaneous

Interferon alpha-2b

Pegylated Interferon alpha-2a

120. Which of the following is diagnostic of acute hepatitis B infection?

a) IgM anti-Hbc

b) IgG anti-Hbc

c) IgM anti-Hbe

d) anti-Hbs antibody

Correct Answer - A
Ans. a. IgM anti-Hbc

121. A nurse has been found to be seropositive for both HbsAg and HbeAg. She is suffering from:

a) Acute infectious hepatitis B

b) Concurrent hepatitis B and hepatitis E infection

c) Chronic hepatitis B infection

d) Past history of hepatitis infection

Correct Answer - A

Ans. a. Acute infectious hepatitis B

Patients who are seropositive for both HbsAg and HbeAg are suffering from acute infectious hepatitis B.

122. A person developed seizures on the railway station while waiting for the train. A wristband was found showing that he is a patient of epilepsy and has a medicine in his pocket. What will you do next?

a) Put a handkerchief in his mouth and restrain him by holding hands and legs

b) Take him away from the train, give him medicine with small sips of water and wait for seizure to resolve

c) Take him away from the train, give him medicine with small sips of water and raise his legs and wait for seizure to resolve

d) Take him away from the train, make him lie down and call for the hospital

Correct Answer - D

Ans. D

- Always stay with the person until the seizure is over
- Pay attention to the length of the seizure
- Stay calm, most seizures only last a few minutes
- Prevent injury try moving nearby objects out of the way
- Make the person as comfortable as possible
- Do not forcibly hold the person down
- Do not put anything in the person's mouth
- Make sure their breathing is okay
- Do not give water, pills or food by mouth unless the person is fully alert

- Call for emergency medical help

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123. In which of the following disease decrease in levels of single neurotransmitter was first identified?

a) Alzheimer's disease

b) Parkinson's disease

c) Huntington's disease

d) Schizophrenia

Correct Answer - B

Ans. b. Parkinson's disease

The systematic biochemical investigation of the brains of patients with Alzheimer's disease began in the late 1960s and early 1970s. The hope was that a clearly defined neurochemical abnormality would be identified, providing the basis for the development of rational therapeutic interventions analogous to levodopa treatment of Parkinson's disease. '- [http:// www.ncbi.nlm.nih.gov/pmc/articles/PMC1736202/pdf/v066p00137.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1736202/pdf/v066p00137.pdf)

'**Schizophrenia** is due to dysregulated serotonin, dopamine and noradrenaline, but a predominant role of a single neurotransmitter has not been described yet

Disease	Related Neurotransmitter/Pathology
Schizophrenia	Dopamine, Serotonin and Norepinephrine are Ted
Huntington's disease	CAG trinucleotide expansion° on a gene called 'Huntingtin' localized on chromosome 4 ^Q .

Parkinson's
disease

Caused by triple repeat
expansion mutation^Q
Degeneration of
dopaminergic neurons in
the substantia nigra pars
compacta (SNc), reduced
striatal dopamine, and
intracytoplasmic
proteinaceous inclusions
known as Lewy bodies
Biochemically, AD is
associated with a decrease
in the cortical levels of
several proteins and
neurotransmitters,
especially acetylcholine, its
synthetic enzyme choline
acetyltransferase, and
nicotinic cholinergic
receptors.

Alzheimer's
disease

124. Which of the following is not caused by non-typable Hib?

a) Otitis media

b) Meningitis

c) Exacerbation of COPD

d) Puerperal sepsis

Correct Answer - B

Ans. b. Meningitis

'Diseases due to H. influenza may be considered under two groups, invasive and noninvasive.

In the first group, the bacillus acts as a primary pathogen, causing acute invasive infections. The bacilli spread through blood, being protected from phagocytes by their capsule

125. A 15-year-old boy came back to his village after a vacation to his relatives. He developed severe headache and purulent nasal discharge and was diagnosed as acute bacterial meningitis. He died 5 days later. Which of the following is most likely etiological agent?

a) *Entamoeba histolytica*

b) *Naegleria fowleri*

c) *Toxoplasma gondii*

d) *Plasmodium falciparum*

Correct Answer - B

Ans. b. *Naegleria fowleri*

Naegleria fowleri:

Naegleria prefers warm freshwater, and most cases occur in otherwise healthy children, who usually have swum in lakes or swimming pools during the previous 2 weeks.

Naegleria enters the central nervous system via water inhaled or splashed into the nose, with trophozoites disrupting the olfactory mucosa, invading through the cribriform plate, and ascending via the olfactory nerves into the brain.

Earliest manifestations are anosmia (usually perceived as alterations in taste), headache, nasal discharge, fever, photophobia, nausea, and vomiting.

Death usually occurs within 7-10 days of the onset of symptoms

Laboratory findings in the CSF resembles those in bacterial meningitis, with high opening pressures, low glucose levels high protein concentrations, and elevated polymorphonuclear cell-predominant white blood cell counts.

Diagnosis of PAM is based on the finding of motile Naegleria trophozoites in wet mounts of freshly obtained cerebrospinal fluid (CSF).

126. A 70-year-old female suffered from an attack of influenza but refused to take the vaccine. She subsequently developed pneumonia and died in 5 days. What is the most common cause of post-influenza pneumonia?

a) Staphylococcus aureus

b) Legionella pneumophila

c) Measles

d) Cytomegalovirus

Correct Answer - A

Ans. a. Staphylococcus aureus

Staphylococcus aureus is the most common cause of post-influenza pneumonia.

Secondary Bacterial Pneumonia follows Acute Influenza:

Improvement of the patient's condition over 2-3 days is followed by a reappearance of fever along with clinical signs and symptoms of bacterial pneumonia, including cough, production of purulent sputum, and physical and x-ray signs of consolidation. The most common bacterial pathogens in this setting are Streptococcus pneumoniae, Staphylococcus aureus, and Haemophilus influenzae — organisms that can colonize the nasopharynx and that cause infection in the wake of changes in bronchopulmonary defenses

Secondary Bacterial Pneumonia follows Acute Influenza

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- The most common bacterial pathogens in this setting are *Streptococcus pneumoniae*, *Staphylococcus aureus*, and *Haemophilus influenzae* organisms that can colonize the nasopharynx and that cause infection in the wake of changes in bronchopulmonary defenses
- The etiology can often be determined by Gram's staining and culture of an appropriately obtained sputum specimen.
- Secondary bacterial pneumonia occurs most frequently in high-risk individuals with chronic pulmonary and cardiac disease and in elderly individuals^Q.
- Patients with secondary bacterial pneumonia often respond to antibiotic therapy when it is instituted promptly.

127. Which of the following is true about Non-specific interstitial pneumonia?

a) Early appearance of honey combing on CT

b) Males are affected more commonly than female

c) Common in elderly age group

d) Associated with good prognosis

Correct Answer - D

Ans. d. Associated with good prognosis

Non-specific interstitial pneumonia is associated with good prognosis.

Non-specific interstitial pneumonia (NSIP) patients have diffuse interstitial lung disease of unknown etiology whose lung biopsies fail to show diagnostic features of any of the other well-characterized interstitial diseases. It is important to recognize it, since these patients have a much better prognosis than do those with Usual Interstitial Pneumonia

Non-specific Interstitial Pneumonia

- Nonspecific interstitial pneumonia (NSIP) patients have diffuse interstitial lung disease of unknown etiology whose lung biopsies fail to show diagnostic features of any of the other well-characterized interstitial diseases.
- It is important to recognize it, since these patients have a much better prognosis than do those with Usual Interstitial Pneumonia (UIP)

Non-specific Interstitial Pneumonia Morphology

Cellular pattern

Consists of mild to

Fibrosing pattern

Consists of diffuse

moderate chronic interstitial inflammation, containing lymphocytes and a few plasma cells with uniform or patchy distribution or patchy, interstitialfibrosis without the temporal heterogeneity that is characteristic of UIP.

Clinical Features:

- Patients present with dyspnea and cough of several months duration.
- They are typically between 46 and 55 years of age, those having the NSIP cellular pattern being somewhat younger than those with fibrosing pattern or UIP.
- Patients with cellular pattern have a better outcome than do those with fibrosing pattern and UIP.

128. Most common location of MALT (Mucosa Associated Lymphoid Tissue):

a) Stomach

b) Duodenum

c) Jejunum

d) Ileum

Correct Answer - D

Ans. D. Ileum

MALT includes macroscopically visible lymphoid masses, notably the peripharyngeal lymphoid (Waldeyer's) ring of tonsillar tissue (palatine, nasopharynx tubal and lingual), and the Peyer's patches of the small intestine.'

Although extranodal lymphomas can arise in virtually any tissue, they do so most commonly in the GI tract, particularly the stomach. The question is regarding the most common site for MALT (and not MALToma) for which the answer is the ileum.

129. All of the following heart sounds are heard in chronic mitral stenosis except?

a) Mid diastolic murmur

b) Third heart sound

c) Opening snap

d) Loud S I

Correct Answer - B

Ans. B. Third heart sound.

Clinical Findings in Mitral Stenosis

- Upon auscultation of an individual with mitral stenosis, the first heart sound is usually loud and may be palpable (tapping apex beat) because of increased force in closing the mitral valve. The first heart sound is made by the mitral and tricuspid heart valves closing. These are normally synchronous, and the sounds are termed M1 and T1, respectively. M1 becomes louder in mitral stenosis. It may be the most prominent sign.
- If pulmonary hypertension secondary to mitral stenosis is severe, the P2 (pulmonic) component of the second heart sound (S2) will become loud.
- An opening snap that is a high-pitch additional sound may be heard after the A2 (aortic) component of the second heart sound (S2), which correlates to the forceful opening of the mitral valve.
- A mid-diastolic rumbling murmur with presystolic accentuation will be heard after the opening snap. The murmur is best heard at the apical region and is not radiated. Since it is a low-pitch sound, it is heard best with the bell of the stethoscope. Its duration increases with worsening disease. Rolling the patient toward left as well as isometric exercise will accentuate the murmur. A thrill might be present when

palpating at the apical region of the precordium.

130. A patient has dyspnea, syncope and angina. What is the most likely diagnosis?

a) Aortic stenosis

b) Aortic regurgitation

c) Atrial septal defect

d) Ventricular septal defect

Correct Answer - A

Ans. a. Aortic stenosis

Patients of aortic stenosis have dyspnea, syncope and angina. 'Most patients with pure or predominant AS have gradually increasing obstruction over years, but do not become symptomatic until the sixth to eighth decades. Exertional dyspnea, angina pectoris, and syncope are the three cardinal symptoms. Often, there is a history of insidious progression of fatigue and dyspnea associated with gradual curtailment of activities. Dyspnea results primarily from elevation of the pulmonary capillary pressure caused by elevations of LV diastolic pressures secondary to reduced left ventricular compliance and impaired relaxation. Angina pectoris usually develops somewhat later and reflects an imbalance between the augmented myocardial oxygen requirements and reduced oxygen availability. Exertional syncope may result from a decline in arterial pressure caused by vasodilation in the exercising muscles and inadequate vasoconstriction in non-exercising muscles in the face of a fixed CO, or from a sudden fall in CO produced by an arrhythmia. '- Harrison 18/e p1939

Aortic stenosis

Etiology:

- Congenital (bicuspid, unicuspid), Degenerative calcific, Rheumatic fever, Radiation
- Symptoms:
- AS is rarely of clinical importance until the valve orifice has narrowed to approximately **1 cm²**.
- Once symptoms occur, valve replacement is indicated^Q.
- Most patients with pure or predominant AS have gradually increasing^Q obstruction over years, but do not become symptomatic until the sixth to eighth decades^Q
- Exertional dyspnea, angina pectoris, and syncope are the three cardinal symptoms^Q
- Often, there is a history of insidious progression of fatigue and dyspnea associated with gradual curtailment of activities^Q
- Because the CO at rest is usually well maintained until late in the course, marked fatigability, weakness, peripheral cyanosis, cachexia, and other clinical manifestations of a low CO are usually not prominent until this stage is reached^Q
- Orthopnea, paroxysmal nocturnal dyspnea, and pulmonary edema, i.e., symptoms of LV failure, also occur only in the advanced stages of the disease^Q
- Severe pulmonary hypertension leading to RV failure and systemic venous hypertension, hepatomegaly, AF, and TR are usually late findings in patients with isolated severe AS^Q
- Death in patients with severe AS occurs most commonly in the 7th and 8th decades^Q

Auscultation:

- An early systolic ejection sound is frequently audible in children, adolescents, and young adults with congenital BAV disease^Q.
- Paradoxical splitting of S2^Q
- S₄: Audible at the apex^Q
- S3 generally occurs late in the course^Q
- Ejection (mid) systolic murmur^Q

Ejection (mid) systolic murmur in AS

- Commences shortly after the S₁^Q

- Increases in intensity to reach a peak toward the middle of ejection^Q
- Ends just before aortic valve closure^Q
- Characteristically low-pitched, rough and rasping in character, and loudest at the base of the heart, most commonly in the 2nd right intercostal space^Q.
- Transmitted upward along the carotid arteries^Q
- Occasionally, transmitted downward and to the apex, where it may be confused with the systolic murmur of MR (Gallavardin effect^Q).

Echocardiography:

- The key findings on TTE are thickening, calcification, and reduced systolic opening of the valve leaflets and LV hypertrophy^Q.
- Eccentric closure of the aortic valve cusps is characteristic of congenitally bicuspid valves^Q

Severity of AS	Valve Area
Mild	1.5-2 cm ²
Moderate	1-1.5 cm ²
Severe	

- Echocardiography is useful for identifying coexisting valvular abnormalities; for differentiating valvular AS from other forms of LV outflow obstruction: and for measurement of the aortic root and proximal ascending aortic dimension^Q.
- Dobutamine stress echocardiography is useful for the evaluation of patients with AS and severe LV systolic dysfunction (EF < 0.35), in whom the severity of the AS can often be difficult to judge.^Q

131. Which of the following is usually not seen in rheumatic heart disease?

a) MS

b) TS

c) AS

d) PS

Correct Answer - D

Ans. d. PS

'Auscultatory Findings in MS: The first heart sound (S1) is usually accentuated and slightly delayed. The pulmonary component of the second heart sound (P2) also is often accentuated, and the two components of the second heart sound (S2) are closely split. The opening snap (OS) of the mitral valve is most readily audible in expiration or just medial to the cardiac apex. This sound generally follows the sound of aortic valve closure (A2) by 0.05-0.12s. The time interval between A2 and OS varies inversely with the severity of the MS. The OS is followed by a low-pitched, rumbling, diastolic murmur, heard best at the apex with the patient in the left lateral recumbent position; it is accentuated by mild exercise (e.g., a few rapid sit-ups) carried out just before auscultation.' -Harrison

132. Which of the following is the most effective treatment of severe malaria?

a) Doxycycline

b) Primaquine

c) Chloroquine

d) Artesunate

Correct Answer - D

Ans. d. Artesunate

Treatment of Severe Falciparum Malaria: Artesunate (2.4 mg/kg stat IV followed by 2.4 mg,/kg at 12 snd 24 h and then daily if necessary) or if unavailable, one of the following: Artemether or or Quinine dihydrochloride

133. Which of the following pulmonary symptoms don't have the corresponding non-pulmonary association?

a) Cyanosis-Anxiety

b) Wheezing-Congestive heart failure

c) Tachypnea-Acidosis

d) Chest pain-Pericarditis

Correct Answer - A

Ans. a. Cyanosis-Anxiety

Cyanosis is a severe respiratory symptom. It is seldom seen in anxiety.

In Heart Failure patients with pulmonary edema, rates may be heard widely over both lung fields and may be accompanied by expiratory wheezing (cardiac asthma)

Metabolic acidosis has profound effects on the respiratory, cardiac, and nervous systems. The fall in blood pH is accompanied by a characteristic increase in ventilation, especially the tidal volume (Kussmaul respiration) and Heart rate.'

'Chest Pain is a characteristic feature of pericarditis, which makes it a close differential for Myocardial Infarction

134. In a patient with Anti-Phospholipid Antibody syndrome, which of the following treatment is used to prevent further abortions?

a) Aspirin + LMWH

b) Corticosteroids

c) IV immunoglobulins

d) Plasmapheresis

Correct Answer - A

Ans. a. Aspirin + LMWH

Aspirin and low molecular weight heparin (LMWH) is used to prevent further abortions in patients of Anti-Phospholipid

Antibody syndrome.

Defined by a clinical association of antiphospholipid antibodies and hypercoagulability

. Considered a systemic autoimmune disease which is characterized by recurrent thrombosis or pregnancy complications, along with the presence of Antiphospholipid antibodies

. Primary APS: No cause is identified; Secondary APS: Defined cause like SLE is identified

135. A man presented with bilateral crepitations in the base of the lungs and signs of pneumonitis with a history of exposure to pigeon feces. Which of the following is true about this condition?

a) Diagnosis can be made on the basis of history

b) CT scan is investigation of choice

c) Chest X-ray will reveal characteristic changes

d) It is type I hypersensitivity reaction

Correct Answer - A

Ans. a. Diagnosis can be made on the basis of history

Bilateral crepitations in the base of the lungs and signs of pneumonitis with a history of exposure to pigeon feces are suggestive of hypersensitivity pneumonitis. Prediction rule for it completely relies on the clinical findings for the diagnosis.

136. Which of the following is not a characteristic feature of multiple myeloma?

a) Increased Ig levels in serum

b) Positive ANA

c) Plasmacytosis

d) M spike on electrophoresis

Correct Answer - B

Ans. B. Positive ANA

Serum electrophoresis: Abnormal spike in the region of **gamma globulin** (myeloma spike) is present in 90% of cases.

* **Bone marrow plasmacytosis in multiple myeloma is characteristically more than 30%.**

* **The immunoglobulin least commonly involved in Multiple Myeloma is IgD.**

* **The immunoglobulin most commonly involved in Multiple Myeloma is IgG.**

- **Low haemoglobin,**
- **high ESR** (usually very high),
- increased total protein,
- A/G ratio reversed,
- **increased serum calcium,**
- **normal alkaline phosphatase.**
- **Urine: Bence Jones proteins** are found in 30% of cases.

137. A 60-year old obese male with a history of chronic smoking since childhood presents in ICU with pelvic fracture due to fall from height. On the 4th day of the ICU stay, he developed sudden tachypnoea, fall in SpO2 and hypotension. On 21) echo, there was a dilation of right ventricle and tricuspid regurgitation. What would be the next immediate step?

a) D-dimer assay

b) Administration of heparin

c) Pericardiocentesis

d) Systemic thrombolysis

Correct Answer - B

Ans. b. Administration of heparin

138. A 4-year old girl presents with severe vomiting after a viral fever of 5 days. She is hospitalized and develops cerebral edema. Liver biopsy is most likely to demonstrate which of the following?

a) Centrilobular hemorrhagic necrosis

b) Non-alcoholic steatohepatitis

c) Ring granulomas

d) Marked microvesicular steatosis

Correct Answer - D

Ans. d. Marked microvesicular steatosis

Reye's Syndrome (Fatty Liver with Encephalopathy):

- Acute illness, encountered exclusively in children
- Onset usually follows an upper respiratory tract infection, especially influenza or chickenpox°
- Characterized clinically by: Vomiting°, signs of progressive CNS damage°, signs of hepatic injury°, hypoglycemia°
- Cause is unknown, although viral agents and salicylates have been implicated&
- Morphologically, extensive vacuolization of the liver and renal tubules°.
- Extensive accumulation of fat droplets within hepatocytes (microvesicular steatosis)

139. A 40-year old obese female presents with fullness of right upper quadrant of abdomen. Her medical history is significant for Type 2 diabetes mellitus and hyperlipidemia. Liver biopsy is most likely suggestive of which of the following diagnoses?

a) Non-alcoholic steatohepatitis

b) Peliosis hepatis

c) Autoimmune hepatitis

d) Primary biliary sclerosis

Correct Answer - A

Ans. a. Non-alcoholic steatohepatitis

-NASH is frequently seen in conjunction with other components of the metabolic syndrome (hypertension, diabetes mellitus, elevated lipids, and obesity), with NAFLD being considered the hepatic manifestation of this syndrome

The diagnosis of NAFLD requires a careful history to determine the amount of alcohol used.

. Imaging studies can show characteristic features of a fatty liver, but the ultimate diagnosis of either hepatic steatosis or NASH requires liver biopsy.

o Liver biopsy shows characteristic macrovesicular steatosis with occasional microvesicular fat being identified.

. The histologic features of NASH are very similar to those seen in

alcoholic liver disease

. Mallory's hyaline can be seen in both disorders, although the number of hepatocytes with Mallory's

hyaline and the size of the deposits are frequently greater in alcoholic liver disease than in NASH.

. The fibrosis that occurs in NASH has a characteristic perivenular and perisinusoidal distribution

140. A young female patient presents with jaundice and elevated liver enzymes. She has a history of two similar episodes in the past. Her serum ANA was 1:40 and IgG was 2400 IU. Her serum copper levels were normal and viral markers were negative. A liver biopsy was carried out and based on the pathology report, you treated her with immunosuppressants and the patient's condition improved. What was the most likely finding on pathology report to suggest the treatment?

a) Non-alcoholic steatohepatitis

b) Hemosiderosis

c) Autoimmune hepatitis

d) Primary biliary cirrhosis

Correct Answer - C

Ans. c. Autoimmune hepatitis

Many of the clinical features of autoimmune hepatitis are similar to those described for chronic viral hepatitis.

. Fatigue, malaise, anorexia, amenorrhea, acne, arthralgias, and jaundice are common.

. Occasionally arthritis, maculopapular eruptions (including

cutaneous vasculitis), erythema nodosum, colitis, pleurisy, pericarditis, anemia, azotemia and sicca syndrome

Type I autoimmune hepatitis-

Associated with marked hyperglobulinemia, lupoid features, circulating ANA and

HLA-DR3 or HLA-DR4 (especially BB-DRB1-03).

Associated autoantibodies: Autoantibodies against actin as well as atypical pANCA

Type II autoimmune hepatitis-

Linked to HLA-DRB1 and HLA-DQBI haplotypes

Associated with anti-LKMI

Type III autoimmune hepatitis-

These patients lack ANA and anti-LKMI but have circulating antibodies to soluble

liver antigen/liver pancreas antigen

141. Laxative abuse is associated with:

a) Hypokalemia

b) Hypomagnesemia

c) Hypoglycemia

d) Colonic spasticity

Correct Answer - A

Ans. a. Hypokalemia

"Noninfectious gastrointestinal processes such as celiac disease, ileostomy, villous adenomas, VIPomas, and chronic laxative abuse also can cause significant hypokalemia."- Harrison 18/e p351

"Diarrhea due to laxative abuse is an occasional cause of hypokalemia in the adolescent or adult

Non-Renal Loss of Potassium

- The loss of IC in sweat is typically low except under extremes of physical exertion.
- Direct gastric losses of IC due to vomiting or nasogastric suctioning are also minimal; however, the ensuing hypochloremic alkalosis results in persistent kaliuresis due to secondary hyperaldosteronism and bicarbonaturia, i.e., a *renal* loss of Kt
- Intestinal loss of IC- due to diarrhea is a globally important cause of hypokalemia^Q in light of the worldwide prevalence of diarrheal disease.
- Noninfectious gastrointestinal processes such as celiac disease, ileostomy, villous adenomas, VIPomas, and chronic laxative abuse also can cause significant hypokalemia^Q
- Colonic pseudo-obstruction (Ogilvie's syndrome) can lead to hypokalemia from secretory diarrhea with an abnormally high potassium content caused by a marked activation of colonic IC

secretion^Q.

142. Which of the following is not a diagnostic criteria for declaring brainstem death?

a) Absence of brainstem reflexes

b) A positive apnea test

c) Lack of cerebromotor response to pain in all extremities

d) Absence of stretch reflex from all extremities is essential

Correct Answer - D

Ans. d. Absence of stretch reflex from all extremities is essential
The definition of Brain stem death requires simultaneous demonstration that the patient has irreversibly lost the capacity of consciousness (Coma) and the capacity to breathe (Apnea), both of which are dependent on intact brainstem.

. Clinical assessment of the integrity of Brainstem has two components including assessment of the integrity of brainstem-mediated cranial nerve reflexes and the Apnea test⁹

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143. One of the following drugs is used in the treatment of acute bacterial meningitis:

a) Erythromycin

b) Sulfamethoxazole

c) Ceftriaxone

d) Streptomycin

Correct Answer - C

Ans. c. Ceftriaxone

Streptococcus pneumoniae

Penicillin-sensitive- Penicillin G

Penicillin-intermediate- Ceftriaxone or cefotaxime or cefepime

Penicillin -resistant- (Ceftriaxone or cefotaxime or cefepime) + vancomycin

144. The right atrium chronic overload is indicated by a P wave of more than:

a) 2.5 mm

b) 3.5 mm

c) 4.5 mm

d) 5.5 mm

Correct Answer - A

Ans. a. 2.5 mm

Normal atrial depolarization vector is oriented downward and towards the subject's left, reflecting the spread of depolarization from the sinus node to the right and then the left atrial myocardium. This vector points toward the positive pole of lead II and toward the negative pole of lead aVR. Normal P wave is less than 2.5 mm in lead II. If it is more than 2.5 mm, this indicates right atrial overload. Harrison 19/e p1453, 18/e p1832

Right Atrial Enlargement (P Pulmonale): Peaked, tall and narrow P waves in leads II, III and aVF in lung disease are called 'P pulmonale'. The presence of P pulmonale is taken as P wave of more than 2.5 mm in leads II, III and aVF. Though many factors such as verticalization of the heart, increased residual volume and impaired lung function have been reported to be correlated with these changes in the P wave right atrial overload (right atrial enlargement or increased right atrial pressure or both) is still thought to be responsible for P pulmonale in lung disease. Maeda S, Katsura H, Chida K, Imai T, Kuboki K, Watanabe C, Kida K, Ohkawa S, Matsushita S, Ueda K and Kuramoto K. Lack of correlation between P pulmonale and right atrial overload in chronic obstructive airways disease.

Right Atrial Enlargement (P Pulmonale): As the activation of the right atrium begins earlier than that of the left atrium, an increase of the right atrial (RA) vector does not prolong the P duration. P pulmonale is characterized by tall and sometimes pointed P waves in leads II, aVF and III. The amplitude of the P waves is 2.5 mm in at least one of these leads. In the 'opposite' lead aVL, the P wave is completely negative. The P wave may be higher than normal and pointed in leads V1, rarely in the other precordial leads." - Marc Gertschs The ECG; A Two-Step Approach to Diagnosis ; Ch-4

145. Anti-neutrophil cytoplasmic antibodies (ANCA) is seen in

a) Wegener's Granulomatosis

b) Diabetes mellitus Rheumatoid arthritis

c) Churg

d) Strauss syndrome

Correct Answer - A
Ans. a. Wegener's

146. An elderly female presented with blockade, nasal discharge, diplopia and facial swelling. On examination, there is blackish discharge from the nasal cavity with necrosis of nasal mucosa, facial skin and palate. There is fixation of the right globe. There is elevated blood sugar and urinary ketones are positive. Which of the following would be the medication to be used in this patient?

a) Amphotericin B

b) Itraconazole

c) Ketoconazole

d) Broad spectrum antibiotics

Correct Answer - A

Ans. a. Amphotericin B (Rcf : Harrison 19/e p1350,18/ep 1661-1664)

- This diabetic patient is most likely suffering from mucormycosis, in which there is involvement of peri-orbital region and visual impairment. I.V. Amphotericin BQ is the treatment most commonly used in all forms of Mucormycosis.

147. A 6-year-old girl presented with abdominal pain after administration of a sulfa drug. She was incoherent and suffered a seizure. Which of the following is the most likely possibility?

a) Acute intermittent porphyria

b) Congenital erythropoietic porphyria

c) Adenosine deaminase deficiency

d) HGPRTase deficiency

Correct Answer - A

Ans. a Acute intermittent porphyria (Re/: Harrison 19/ep2521, 18/ep3168-3169)

Acute intermittent porphyria is precipitated by barbiturates, alcohol, exposure to heavy metals, sulfa drugs.

Acute Intermittent Porphyria:

- Precipitated by barbiturates, alcohol, exposure to heavy metals, sulfa drugs
- Present with nonspecific neurovisceral pain: Abdominal pain, psychiatric disorders, seizures, coma and bulbar Paralysis

148. A boy presented with a history of fever, headache and vomiting since 3 days and disorientation since 1 day. On examination, neck rigidity was positive. He also had 1 episode of generalized tonic clonic seizures (GTC) and then he became unconscious. CECT was found to be normal. CSF examination reveals a cell count of 300 cells/mm³ (polymorphs: 50-70%), protein 70 mg/dL, sugar 50 mg/dL (blood: 95 mg/dL). Which of the following is the most likely diagnosis?

a) Pyogenic meningitis

b) Tubercular meningitis

c) Herpes encephalitis

d) Cerebral malaria

Correct Answer - A

Ans. a. Pyogenic meningitis (ReJ: Harrison 19/e p887, 891, 1111, 18/e p1029, 1692, 3414)

The classic CSF abnormalities in bacterial meningitis are:

- Elevated opening pressure (> 180 mm H₂O in 90%)
- Polymorphonuclear leukocytosis (>100 cells/ul in 90%)
- Decreased glucose concentration (<2.2 mmol/L or <40 mg/dl and or CSF/serum glucose ratio <0.4 in 60%)

- Elevated protein concentration (>45 mg/dl)

149. Routine examination of a 17 years old asymptomatic boy reveals short PR interval, and delta wave on ECG. The least effective measure for the boy would be:

a) Holter monitoring

b) Treadmill stress test

c) Beta blocker

d) Reassurance

Correct Answer - B

Ans.b. Treadmill stress test

This is a case of WPW syndrome. There is no use all treadmill test in these cases as results are often misleading.

Holter monitoring would be indicated to detect the development of any arrhythmias. Beta-blockers have also been used in asymptomatic cases only as a preventive therapy against the development of PSVT.

150. Which of the following features helps in distinguishing seizures from syncope?

a) Loss of consciousness

b) Injury due to fall

c) Urinary incontinence

d) Physical weakness with clear sensorium

Correct Answer - D

Ans. d. Physical weakness with clear sensorium (Ref Harrison 19/e p2551, 18/e p3260-3261)

Urinary incontinence is rare in syncope as compared to seizures.

151. In medically intractable seizures, which of the following modalities of treatment has shown the best seizure-free period?

a) Epileptic surgery

b) Deep brain stimulation

c) Vagal stimulation

d) Ketogenic diet

Correct Answer - A

Ans. a. Epileptic surgery (Ref Harrison 19/e p2556. 18/e p3267; Ketogenic diet for epilepsy by R Levy, P Cooper - Cochrane Database Syst Rev, 2003 - Wiley Online Library)

Epileptic surgery:

- Surgery can be extremely effective in substantially reducing seizure frequency and even providing complete seizure control.

152. Bilateral Babinski sign is characteristic of:

a) Pontine hemorrhage

b) Basal ganglia and thalamic hemorrhage

c) Cerebellar hemorrhage

d) None

Correct Answer - A

Answer- A. Pontine hemorrhage

Features of Pontine hemorrhage

- Sudden onset
- Deep coma with quadriplegia (usually occurs over few minutes)
- Pinpoint pupil (1 mm pupils) that react to light
- Loss of reflex eye movements and corneal responses
- Decerebrate rigidity/Posturing
- Hyperpnea/Hyperventilation
- Severe hypertension
- Ocular bobbing
- Excessive sweating/Hyperhidrosis
- Hyperpyrexia Subarachnoid hemorrhage

153. The genetic mutation seen in the most common type of maturity onset diabetes of young (MOM') is:

a) Hepatocyte nuclear factor-4

b) Hepatocyte nuclear factor-1

c) Glucokinase

d) Insulin promoter factor-1

Correct Answer - B

Answer-b. Hepatocyte nuclear factor-1

Maturity onset Diabetes in Young (MODY) Types

MODY-1 HNF-4 alpha

MODY-2 Glucokinase

MODY-3 HNF-1 alpha (most common)

MODY-4 IPF-1

MODY-5 HNF-1 beta

MODY-6 NeuroD1/beta2

154. In arterial blood gas analysis of a patient with pCO₂- 30, pO₂-115 and pH-7.45, patient has compensated:

a) Respiratory alkalosis

b) Metabolic alkalosis

c) Respiratory acidosis

d) Metabolic acidosis

Correct Answer - A

Ans. a. Respiratory alkalosis (*Ref Oxford Handbook of Medicine 5/e p684*)

- In arterial blood gas analysis of a patient with pCO₂-30, pO₂-115 and pH-7.45, patient has compensated respiratory alkalosis.

155. A 55-year-old male presents with renal failure. He gives a history of mild bone pains for the last 7 years. X-ray pelvis shows osteolytic lesions. Serum electrophoresis reveals a M spike. Peripheral blood evaluation showed rouleaux formation of RBCs with 35% plasma cells. Bone marrow examination showed a increase in plasma cells with aberrant antigen expression. The most likely diagnosis is:

a) Multiple myeloma

b) Monoclonal gammopathy with unknown significance

c) Smouldering myeloma

d) Plasma cell leukemia

Correct Answer - A

Answer- A (Multiple myeloma)

- Malignant proliferation of plasma cells in the bone marrow results in the production of large number of complete and incomplete immunoglobulins.

156. A 50-year-old male presented with complains of ptosis, difficulty in chewing and occasional difficulty in swallowing. There is no history of diplopia or visual loss. On examination, there is symmetric ptosis and mild restriction of extraocular muscle movement with finger abduction test 60°. Nerve conduction study shows decremental response in orbicularis only. ERG revealed a myopathic pattern. Anti-AchR radioimmunoassay was negative. The most probable diagnosis would be:

a) Ocular myasthenia gravis

b) Generalized myasthenia gravis

c) As anti-ACHR is negative you will consider an alternative diagnosis

d) Chronic progressive external ophthalmoplegia (CPEO)

Correct Answer - B

Ans. b. Generalized myasthenia gravis (Ref Harrison 19/e p2701, 18/e p3480-3482; Meritt's Neurology 12/e p389)

Myasthenia gravis is a major cause of ptosis and diptopia. The distribution of muscle weakness has a characteristic patten.

The cranial muscles particularly the lids and extraocular muscles are

often involved early in the course, diplopia and ptosis are common initial complaints.

157. Which of the following is true about treatment of CLL?

a) Should be offered to all patients

b) Can be withheld in asymptomatic patients

c) Is curative

d) Combination chemotherapy should be given in patients above 50 years of age

Correct Answer - B

Ans. b. Can be withheld in asymptomatic patients

Chronic Lymphocytic Leukemia:

- Treatment is not curative
- Treatment not required in asymptomatic patients
- Treatment is given to normalize the cell count
- In patients less than 50 years, multiple drug therapy is preferred

158. A young male presents with painful ulcers on the mouth and glans penis with blurred vision and history of recurrent epididymitis. Which of the following is the most probable diagnosis?

a) Behcet's disease

b) Oculocutaneous aphthous ulcer syndrome

c) Fabry's disease

d) Reiter' syndrome

Correct Answer - A

Answer- A (Behcet's disease)

- Behcet's syndrome is chronic multisystem relapsing vascular inflammatory disease (vasculitis) of unknown origin
- Behcet's disease is primarily a small vessel vasculitis but it can also involve large vessels both arteries and veins.
- Associated with HLA-B5
- Disease affect young patients
- Both males and females are equally affected

Behçet's disease present with some form of painful ulcerations inside the mouth. They are a form of aphthous ulcers or non-scarring oral lesions. The oral lesions are similar to those found in inflammatory bowel disease and can be relapsing.[4] Painful genital ulcerations usually develop around the anus, vulva, or scrotum and cause scarring in 75 percent of the patients. Additionally, patients may present with erythema nodosum, cutaneous pustular vasculitis, and lesions similar to pyoderma gangrenosum.

159. 55 years old diabetic patient presents with transient obscuration in vision for 2-3 days followed by sudden loss of vision. Which of the following would be the best test to evaluate his symptoms?

a) Serum ACE levels

b) Quantiferon-Gold TB test

c) Elevated homocysteine levels

d) Serum creatinine levels

Correct Answer - D

Ans. d. Serum creatinine levels (Ref: Harrison 19/e p2424, 18/e p2977, 2981)

- DM can lead to both retinopathy and nephropathy, Serum creatinine levels would be the best for kidney function and evaluation of patient symptoms.

160. Which of the following drugs is effective as a replacement for sodium valproate in a female of childbearing age group for treatment of juvenile monogenic epilepsy?

a) Levetiracetam

b) Lincosamide

c) Carbamazepine

d) Phenytoin

Correct Answer - A

Ans. a. Levetiracetam (Rcf: Harrison 19/e p2541, 18/e p3265. -12531)

- Levetiracetam can be prescribed as monotherapy in a female patient of childbearing age is on valproate for JME, because of no known significant drug interactions.
- Treatment of Juvenile Myoclonic Epilepsy:
- Valproate is often used to treat juvenile myoclonic epilepsy.
Other epilepsy drugs are effective in juvenile myoclonic epilepsy:
- Levetiracetam
- Topiramate
- Lamotrigine

161. An elderly, hypertensive patient presented with sudden onset headache, vomiting, neck rigidity without focal neurological deficit. Diagnosis:

a) Subarachnoid hemorrhage

b) Ischemic stroke

c) Subdural hemorrhage

d) Meningitis

Correct Answer - A

Ans. a. Subarachnoid hemorrhage (Ref Harrison 19/e p1784, 18/e p2262-2263; Sobiston 19/e p1880-1882; Schwartz 9/e p1534-1536; Bailey 25/e p304)

- An elderly, hypertensive patient presented with sudden onset headache, vomiting, neck rigidity without focal neurological deficit, diagnosis in this case is subarachnoid hemorrhage.

162. A 62 years old woman presented with acute onset confusion and bumping into things. On examination, she was alert, oriented with fluent speech and normal comprehension. Further examination revealed impaired writing (acalculia), right-left confusion, impaired arithmetic abilities, difficulty in finger identification. MRI demonstrated foci of cortical and sub cortical increase T2 signals and areas of leptomeningeal enhancement. Most likely diagnosis:

a) Gerstmann's syndrome

b) Millard-Gubler syndrome

c) Anton syndrome

d) Korsakoff's psychosis

Correct Answer - A

Answer- A (Gerstmann's syndrome)

- The combination of acalculia (impairment of simple arithmetic), dysgraphia (impaired writing)' finger anomia (an inability to name individual fingers such as the index and thumb), and right-left confusion (an inability to tell whether a hand, foot, or arm of the patient or examiner is on the right or left side of the body) is known as Gerstmann's syndrome.

- When Gerstmann's syndrome is seen in isolation, it is commonly associated with damage to the inferior parietal lobule (especially the angular gyrus) in the left hemisphere.

163. Which of the following is not correct regarding iron deficiency anemia?

a) Increased RDW (>14.5%)

b) Decreased serum iron (<75ug/mL)

c) Decreased TIBC (<350p.g/mL)

d) Decreased serum ferritin (<151.1g/dL)

Correct Answer - C

Ans. c. Decreased TIBC (<350 mg/ml) (Re./: Winrobes 12/e p795)

- Iron deficiency anemia, there is decreased MCV and MCH with an elevated red cell distribution width and increased TIBC, decreased serum iron and decreased serum ferritin.
- Iron Deficiency Anemia:
- Decreased MCV and MCH
- Elevated red cell distribution width
- Increased TIBC
- Decreased serum iron
- Decreased serum ferritin

164. With reference to the optimal management of patients with sepsis in the intensive care unit, all of the following interventions are evidence-based except:

a) Low tidal volume during assisted ventilation prevents acute lung injury

b) For outcome of goal-oriented management of sepsis patients, monitoring of central venous pressure, hourly urine output and blood pressure is adequate

c) Intensive blood glucose monitoring and prevention of hyperglycemia improves survival in critically ill patients

d) The use of drotrecogin-alpha is restricted to severely ill patients with APACHE score > 25

Correct Answer - C

Answer: . c. Intensive blood glucose monitoring and prevention of hyperglycemia improves survival in critically ill patients (Harrison 19/e p1751, 18e/pg 2954-2957)

Low tidal volume during assisted ventilation prevents acute lung injury:

- The results of recent studies favor the use of low tidal volumes 6 mL/kg of ideal body weight as low as 4 mL/kg if plateau pressure exceeds 30 cm H₂O in order to reduce the risk of ventilator induced Acute Lung Injury (ALI).

165. Addison's disease was first reported by Thomas Addison. It is still being widely reported from various parts of the world. Which of the following is the most common cause of Addison's disease in India?

a) Tuberculous adrenalitis

b) Post-partum pituitary insufficiency

c) Autoimmune adrenalitis

d) HIV infection of adrenals

Correct Answer - A

Answer: . a. Tuberculous adrenalitis (Ref API 7/e 171073; flm-ricon 19/r n2323, 18/e p2955, '141)Mostcommon cause of Addison's disease in India is tuberculous adrenalitis.

166. Which of the following clinical features of demyelinating myelopathy least likely suggests a progression to multiple sclerosis?

a) Complete cord transection

b) Bilateral visual loss

c) Absence of oligoclonal bands

d) Poor prognosis

Correct Answer - C

Answer: c. Absence of oligoclonal bands (Ref Harrison 19/e p2656. 18/e p3372)

Oligoclonal bands are variable; but when bands are present, a diagnosis of **MS** is more likely, thus absence of oligoclonal bands suggests a less likely progression to MS.

167. A 29-year-old, 4 months pregnant primigravida has history of juvenile myoclonic epilepsy. She has been regularly taking sodium valproate and now presents requesting for an opinion for a change in her anti-epileptic treatment. What would you suggest her?

a) Immediately taper off valproate and start lamotrigine

b) Switch to carbamazepine

c) Continue valproate and serial drug monitoring in blood

d) Add lamotrigine to valproate

Correct Answer - C

Answer: c. Continue valproate and serial drug monitoring in blood
(Ref Harrison 19/e p2544, 18/e p3269)

Continue valproate with serial drug monitoring in the blood of the 4-month old patient having history of juvenile myoclonic epilepsy.

168. 72-y ear-olo gentleman with normal renal functions presents with new onset focal seizures. Which of the following is the best drug to manage the patient?

a) Sodium valproate

b) Oxcarbazepine

c) Leviteracetam

d) Pregabalin

Correct Answer - B

Answer: b. Oxcarbazepine (Ref: Harrison 194, p2552. 18/e pc 1)3262)

Among the options provided, oxcarbazepine is the best drug to manage this old patient with normal renal functions presents with new onset focal seizures

169. A 30-year-old gentleman has excessive fatigue at work attributed to sleep discomfort at night. He also has recent history of falling while partying with friends. What are the other features that can be seen associated with his condition?

a) Paralysis during sleep-wake transition with hallucinations

b) Snoring with witnessed sleep apnea

c) Pain in the legs before going to sleep

d) Generalized seizures in the wake state

Correct Answer - A

Answer: a. Paralysis during sleep-wake transition with hallucinations
(Ref. Harrison 19/c p189, 18/e p265)

History of fall is highly suggestive of atonia/paralysis and may be due to Narcolepsy.

170. Hypertensive hemorrhage is most commonly seen in:

a) Basal ganglia

b) Thalamus

c) Brain stem

d) Cerebrum

Correct Answer - A

Ans. A. Basal ganglia

Hypertensive hemorrhage:

- **Causes:** Results from spontaneous rupture of small penetrating artery deep in the brain.
- **Most common site:**
- Basal ganglia (especially putamen), thalamus, cerebellum & pons.
- Small arteries here are most prone to hypertension-induced vascular injury.

171. Which of the following do not usually cause reduction in Diffusion Lung Capacity of Carbon Monoxide?

a) Emphysema

b) Asthma

c) Pulmonary vascular obstruction

d) Interstitial lung disease

Correct Answer - B

Ans: B. Asthma

(Ref Harrison I Y c 1)306 e-5, 18/e p2092)

Diffusing Capacity of the Lung for Carbon Monoxide (DLCO):

- uses a small & safe amount of carbon monoxide to measure gas exchange across alveolar membrane during 10-second breath hold.

Conditions with decreased DLCO:

- Seen in diseases with thickened / destroyed alveolar membranes - Pulmonary fibrosis & emphysema.
- Seen in curtailed pulmonary vasculature - Pulmonary hypertension.
- Seen in reduced alveolar capillary hemoglobin - Anemia.

Conditions with increased DLCO:

- Acute congestive heart failure, asthma, polycythemia & pulmonary hemorrhage.

172. Hyperdynamic circulation is seen in all except:

a) Anemia

b) Beriberi

c) Cor pulmonale

d) AV fistula

Correct Answer - C

Ans: C. Cor pulmonale

(Ref:- Harrison 19/e p1501, 16/e p1901)

Hyperdynamic circulation:

- **Cause:** Seen in conditions with high cardiac output.
- **Eg:** arteriovenous fistula, anemia, & beriberi.
- Doesn't lead to heart failure in normal heart.
- Only with pre-existing & underlying structural heart disease à leads to overt HF.

173. Which of the following statements is true regarding H I N1 Influenza?

- a) Pregnant woman with sore throat can be started immediately on oseltamivir without diagnostic testing under category B
- b) People on long-term steroids cannot receive Os-eltam ivir
- c) Category B concerns with low risk cases
- d) Category B patients have to undergo immediate testing

Correct Answer - A

Ans: A. Pregnant woman with sore throat can be started immediately on oseltamivir without diagnostic testing under category B

(Ref. <http://ilviwww.molifir.nic.in/WriteReadData/1892s/804456402Categorisation.pcifi>)

- Pregnant woman with sore throat can be started immediately on **oseltamivir without diagnostic testing under category B.**
- Drug of choice - Oseltamivir (given for 10 days post-exposure).

Priority groups (in order) for Influenza vaccines

Pregnant women	Healthy young children
Age >6 months with chronic medical conditions	Healthy adults 49-65 years
15-49 years healthy young adults	Healthy adults > 65 years

174. Which of the following is not an autoimmune disorder?

a) Ulcerative colitis

b) Grave's disease

c) Rheumatoid arthritis

d) SLE

Correct Answer - A

Ans: A. Ulcerative colitis

(Ref Harrison 19/e p377, 18/e p2723)

Autoimmune Diseases

	Organ Specific	Organ Nonspecific (Systemic)
Grave's disease	Vitiligo	Systemic lupus erythematosus
Hashimoto's thyroiditis	Autoimmune hemolytic anemia	Rheumatoid arthritis
Autoimmune polyglandular syndrome	Autoimmune thrombocytopenic purpura	Systemic necrotizing vasculitis
Type 1 diabetes mellitus	Pernicious anemia	Granulomatosis with polyangitis
Insulin-resistant diabetes mellitus	Myasthenia gravis	(Wegener's)
Immune-mediated infertility	Multiple sclerosis	Antiphospholipid syndrome
Autoimmune Addison's disease	Guillain-Barre syndrome	Sjogren's syndrom

Pemphigus vulgaris	Stiff-man syndrome
Pemphigus foliaceus	Acute rheumatic fever
Dermatitis herpetiformis	Sympathetic ophthalmia
Autoimmune alopecia	Goodpasture's syndrome

175. Which of the following is false about Transfusion-Related Acute Lung Injury?

a) Develops within 24 hours

b) Mostly seen after sepsis and cardiac surgeries

c) It's a cause of non-cardiogenic pulmonary edema

d) Plasma is more likely to cause it than whole blood

Correct Answer - A

Ans: A. Develops within 24 hours

(Ref Harrison 19/e 138e-5, 18/e p1217)

Transfusion-Related Acute Lung Injury (TRALI):

- MC cause of transfusion related fatalities.

Cause:

- Usually results from transfusion of donor plasma.

Risk factors:

- Smoking.
- Chronic alcohol use
- Shock
- Liver surgery (transplantation).

Symptoms development:

- During or within 6 hrs of transfusion.
- Develops symptoms of hypoxia ($\text{PaO}_2/\text{FIO}_2 < 300$ mmHg).
- Non-cardiogenic pulmonary edema signs including bilateral interstitial infiltrates on chest X-ray.

176. A person is HBsAg positive, but Anti-HBc Ab is negative. What should be the next step?

a) Repeat test after 6 months

b) Check HBV DNA load

c) Check HBeAg, if positive start interferon

d) Reassure patient that he does not have any disease

Correct Answer - B

Ans: B. Check HBV DNA load

(Ref Harrison 19/e p2032, 18/e p2551)

Chronic Hepatitis B – Parameters:

- HBsAg positive; Anti- HBc Ab negative.
- Presence or absence of serum hepatitis Be antigen (HBeAg).
- HBeAg-reactive & HbeAg negative.
- HBV DNA level correlate with liver injury level & has progression risk.

Treatment pre-requisites:

- HBV-DNA load should be done before initiating treatment.

177. A girl comes with symptoms of involuntary movements. Sydenham's chorea and acute rheumatic fever is suspected. Other major criteria of rheumatic fever (arthritis, skin rashes, subcutaneous nodules and carditis) were absent. No evidence of sore throat. Best investigation to prove rheumatic etiology is:

a) Antistreptolysin S

b) Antistreptolysin O

c) Throat culture

d) PCR for M protein

Correct Answer - B

Ans: B. Antistreptolysin O

Antistreptolysin O(ASLO):

- Marker for recent streptococcal infection.
- Best investigation to prove rheumatic etiology.
- **Supporting evidence:**
 - Preceding streptococcal infection within last 45 days.
 - Elevated or rising anti-streptolysin O/other streptococcal antibodies.
 - A positive throat culture.
 - Rapid antigens test for group A streptococcus.
 - Recent scarlet fever.
 - “Revised Jones” criteria do not include recent scarlet fever as

supporting evidence of recent streptococcal.

178. A middle-aged man comes after a road traffic accident with bleeding from the scalp. He is unconscious. A card in his pocket reveals that he is a known diabetic on Tab Glimepiride + Metformin 2 tablets twice daily. What should the next step in management?

a) Send blood for tests, start IV glucose and send to CT

b) Start normal saline and send to CT

c) Dextrose solution, CT scan

d) Airway, CT scan. Blood sugar if <70 start dextrose

Correct Answer - D

Ans: D. Airway, CT scan. Blood sugar if <70 start dextrose
(Ref Harrison 19/e p2435, 18/e p3008; ATLS 9/e 2013; 72(5): p1363-1366)

- First testing of blood sugar necessary before glucose administration for dehydration.
 - To rule out diabetic ketoacidotic coma rather than hypoglycemia.
- Non-contrast head CT (NCCT):**
- Advisable in emergency situations.
 - To avoid cerebral edema due to glucose administration.

179.

Which of the following is not a part of Duke's Criteria for infective endocarditis?

a) Splenomegaly

b) Fever > 100.4 Celsius

c) IV drug user

d) Blood culture positive

Correct Answer - A

Ans: A. Splenomegaly

Modified Duke Infective Endocarditis Criteria:

Criteria	Definite Infective Endocarditis	Possible Infective Endocarditis
Pathologic		
Histologic	Vegetation or intracardiac abscess present, confirmed by histology showing active endocarditis	Short of definite, but not rejected
OR		
Bacteria	Demonstrated by culture or histology in vegetation, or in vegetation that has embolized, or in an intracardiac abscess	Short of definite, but not rejected
Clinical - any one of the following:		
Major criteria 2		Does not apply
Minor criteria 5		3

Major and minor 1 major + 3 minor

1 major and 1 minor

Major Criteria

A. Supportive laboratory evidence

Typical microorganism for infective endocarditis from two separate blood cultures: viridans streptococci, Staphylococcus aureus, Streptococcus Bovis, HACEK group (Haemophilus spp. Actinobacillus actinomycetemcomitans, Cardiobacterium hominins, Eikenella spp., and Kingella kingae) or Community-acquired enterococci, in the absence of a primary focus Persistently positive blood culture.

Single positive blood culture for Coxiella burnetti or phase I antibody titer >1:800

B. Evidence of endocardial involvement

An echocardiogram is supportive of infective endocarditis.

1. Type of study

TEE recommended as the first test mainly in prosthetic valve endocarditis/those with at least "possible" endocarditis by clinical criteria/ those with suspected complicated endocarditis (paravalvular abscess).

Positive findings: Oscillating intracardiac mass, on the valve or supporting structures, or in the path of regurgitant jets, or on implanted material, in the absence of an alternative anatomic explanation or myocardial abscess or new partial dehiscence of prosthetic valve

C. New valvular regurgitation (increase or change in pre-existing murmur not sufficient).

Minor Criteria

Predisposing heart condition or intravenous drug use

Fever ≥ 38.0 C (100.4 F)

Vascular phenomena: major arterial emboli, septic pulmonary infarcts, mycotic aneurysm, intracranial hemorrhage, conjunctival hemorrhage, Janeway lesions

Immunologic phenomena: glomerulonephritis, Osler's nodes, Roth spots, rheumatoid factor

spots, rheumatoid factor

Positive blood culture not meeting major criterion as noted previously (Excluding single positive cultures for coagulase-negative staphylococci and organisms that do not cause endocarditis) or serologic evidence of active infection with organism consistent with infective endocarditis.

180. A man comes with aphasia. He is unable to name things and repetition is poor. However comprehension, fluency and understanding written words is unaffected. He is probably suffering from:

a) Anomic aphasia

b) Broca's aphasia

c) Transcortical sensory aphasia

d) Conduction aphasia

Correct Answer - D

Ans: D. Conduction aphasia

(Ref Harrison 19/e p 1 76, 18/e p302)

- Typical case of conduction aphasia with normal comprehension & fluency, but impaired naming & repetition.

Conduction aphasia:

- Due to damaged arcuate fasciculus.

Arcuate fasciculus:

- Connection between Wernicke's (language comprehension) & Broca's (Language production) areas.
- Hence, connection lost.

Clinical features:

- Hallmark finding - Inability to repeat words.
- Comprehension & language expression intact.
- Inability to transfer understood word to Broca 's area to be expressed.

- Results in meaningful fluent speech & relatively good comprehension but very poor repetition.

181. In a patient with implanted cardiac pacemaker (defibrillator), which of the following investigation is useful to know the position of the misplaced implant ?.

a) X-ray

b) CT scan

c) MR1

d) USG

Correct Answer - A

Ans. a. X-ray (Ref Hurst s The Heart 13/e p1050)

- Hurst's says "Lead dislodgement maybe radiographically visible or it maybe a microdislodgement, where there is no radiographic change in position, but there is significant increase in pacing threshold and/or decline in electrogram amplitude.
- Lead dislodgement may result in an **increasing pacing threshold, failure to capture, or failure to sense. Lead dislodgement** maybe radiographically visible or it maybe a microdislodgement, where there is no radiographic change in position, but there is significant increase in pacing threshold and/or decline in electrogram amplitude.

182. Gait apraxia is seen in thromboembolic episode involving:

a) ACA

b) MCA

c) PCA

d) Posterior choroidal artery

Correct Answer - A

Ans. a. ACA (Ref: Harrison 19/e p163, 18/e p193)

Gait apraxia is seen in thromboembolic episode involving anterior cerebral artery.

Frontal lobe is mainly supplied by **anterior cerebral artery**; its **occlusion** leads to **gait apraxia**

183. A patient with tubercular meningitis was taking ATT regularly. At end of 1 month of regular intake of drugs deterioration in sensorium is noted in condition of the patient. Which of the following investigations is not required on emergency evaluation ?.

a) MRI

b) NCCT

c) CSF examination

d) Liver function tests

Correct Answer - D

Ans. D (Ref Harrison 19/e pi 111, Thle p3414)

- **When bacterial meningitis is suspected, blood cultures should be immediately obtained and empirical antimicrobial and adjunctive dexamethasone therapy initiated without delay.**
- **The diagnosis of bacterial meningitis is made by examination of the CSF. The need to obtain neuroimaging studies (CT or MRI) prior to LP requires clinical judgment.**

184. Which of the following Statements is not true?

a) Parathyroid hormone-related protein is responsible for causing hypercalcemia in cancer patients

b) The unionized fraction of calcium in the plasma is an important determinant of PTH secretion

c) Mg^{2+} influences PTH secretion in the same direction as Ca^{2+} but is a less potent secretagogue

d) Ca^{2+} influences PTH secretion by acting on a calcium sensor G-protein coupled receptor located in the parathyroid gland

Correct Answer - B

Ans. b. The unionized fraction of calcium in the plasma is an important determinant of PTH secretion

- "Circulating ionized calcium acts directly on the parathyroid glands in a negative feedback fashion to regulate the secretion of PTH.
- "Magnesium is required to maintain normal parathyroid secretory responses. Impaired PTH release along with diminished target responses to PTH account for the hypocalcaemia that occasionally occurs in magnesium deficiency

185. Which of the following is not true regarding myelopathy?

a) Sensory loss of facial area

b) Brisk jaw jerk

c) Brisk pectoral jerk

d) Urgency and incontinence of micturition

Correct Answer - B

Ans. b. Brisk jaw jerk

(Ref: De Jongs Neurological examination/ p194, 201, 474.)

Jaw jerk is exaggerated in supranuclear lesions that are above the mid pons.

186. A lady presents with complaints of abdominal pain. CECT shows bilateral papillary necrosis. Which of the following test shall not be done to investigate the cause of her papillary necrosis?

a) Urine acidification test

b) Sickling test

c) Urine RT-PCR for TB

d) Bacterial culture of urine

Correct Answer - A

Ans. a. Urine acidification test

(Ref: Harrison 19/e p1860, 18/e p2372)

- Urine acidification test is mainly done to diagnose RTA (Renal tubular acidosis), not the causes of papillary necrosis.

187. Which of the following statement is not true?

a) Late enhancement on Gadolinium: MRI suggests scar

b) Akinetic area does not benefit from reperfusion

c) Low dose dobutamine may be used to detect hibernating myocardium

d) Rest reinjection thallium is used to detect hibernating myocardium

Correct Answer - B

Ans. b. Akinetic area does not benefit from reperfusion

- "Hibernating myocardium is a reversible state of contractile dysfunction observed in the course of chronic ischemia associated with reduction of coronary blood flow without major evidence of irreversible myocardial damage (viable myocardium).
- The contractile function of hibernating myocardium can be completely restored after reperfusion.
- The contractile function of the hibernating myocardium can be almost completely restored after reperfusion (revascularization)."- 'Panvascular Medicine' by Topal (Springer) 2002/735.

188. Urine analysis of a patient with hematuria and hypercalciuria is most likely to reveal;

a) Isomorphic RBCs

b) RBC casts

c) Nephrotic range proteinuria

d) Eosinophiluria

Correct Answer - A

Ans. a. Isomorphic RBCs

- Urine analysis of a patient with hematuria and hypercalciuria is most likely to reveal isomorphic RBCs.
- "Hypercalciuria is a cause of non-glomerular hematuria. RBCs from a non-glomerular source more closely resemble peripheral blood on microscopy, with isomorphic RBCs and absence of casts."

189. Peripheral eosinophilia with renal failure is least likely to be possible in:

a) Drug-induced interstitial nephritis

b) Drug-induced interstitial nephritis

c) Atheroembolic renal failure

d) Polyangitis nodosa

Correct Answer - D

Answer. d. Polyangitis nodosa

(ref- Wallach interpretation of diagnostic test 8/e pg 95-96)

- Peripheral eosinophilia with renal failure is least likely to be possible in polyangitis nodosa.

190. All are features of benign intracranial hypertension except:

a) Proptosis

b) Normal size ventricles

c) Headache

d) Papilledema

Correct Answer - A

Ans: A. Proptosis

- Proptosis is not seen in benign intracranial hypertension.
- **Characteristic features of Pseudotumor Cerebri:**
- Elevated intracranial pressure (intracranial hypertension) with normal or small sized ventricular system.
- No focal neurological sign.
- Papilledema (enlarged blind spot in visual field).
- Normal CSF finding
- Normal CT scan
- MRI & isotope brain scans
- Excessive slow-wave activity on ECO₂.

191. A 9-year-old boy presented with difficulty in climbing stairs and combing. On examination, bilateral calves are swollen and the child uses his feet to stand up on his legs. What is the next diagnostic step?

a) Creatine kinase levels

b) EMG

c) Nerve conduction velocity

d) RA factor

Correct Answer - A

Ans: A. Creatine kinase levels

(Ref Harrison 19/e p462e-6, 18/e p3490-3491)

- Suggestive of Duchenne muscular dystrophy (Pseudohypertrophic Muscular Dystrophy).
- Another evidence is that child uses his feet to stand up on his legs (Gower's sign).
- Next diagnostic step is creatine kinase levels.

192. Naming and fluency is impaired in:

a) Broca's aphasia

b) Wernicke's aphasia

c) Anomie aphasia

d) Transcortical sensory aphasia

Correct Answer - A

Ans: A. Broca's aphasia

(Ref Harrison 19/e p279, 18/e p203. 3286)

	Comprehension	Repetition of spoken language	Naming	
Wernicke's	Impaired°	Impaired°	Impaired°	F P ir
Broca's	Preserved (except grammar)	Impaired°	Impaired°	D
Global	Impaired°	Impaired°	Impaired°	D
Conduction	Preserved	Impaired°	Impaired°	P
Nonfluent (motor) transcortical	Preserved	Preserved	Impaired	Ir
Fluent (sensory) transcortical	Impaired	Preserved	Impaired	P
Isolation	Impaired	Echolalia°	Impaired	N p S
Anomic	Preserved°	Preserved	Impaired	m

Pure word deafness	Impaired only for spoken language	Impaired	Preserved
Pure alexia	Impaired only for reading	Preserved	Preserved

193. All of the following are features of glucocorticoid deficiency except:

a) Fever

b) Hyperkalemia

c) Postural hypotension

d) Weight loss

Correct Answer - B

Ans: B. Hyperkalemia

(Ref: Harrison 19/c p2325, 18/c p2957)

- Hyperkalemia is seen in mineralocorticoid deficiency but not in isolated glucocorticoid deficiency.
- Fever is due to release of inflammatory mediators, which is suppressed by steroids, is seen in glucocorticoid deficiency.

194. A patient presented with a steering wheel injury to the right side of chest with breathlessness and shock. How will you differentiate tension pneumothorax and cardiac tamponade?

a) Pulse pressure

b) JVP

c) Breath sound

d) Heart sounds

Correct Answer - C

Ans: C. Breath sound

(Ref Harrison 19/e p1573, 1719, 18/e p1972)

- Raised JVP, pulse pressure and muffled heart sounds along with pulsus paradoxus are seen in both cardiac tamponade and tension pneumothorax.
- These are differentiated by auscultation for breath sounds, which are normal in cardiac tamponade but absent in tension pneumothorax patients.

Pericardial Tamponade:

- The three principal features of tamponade (Beck's triad) are hypotension, soft or absent heart sounds, and jugular venous distention with a prominent x-descent but an absent y-descent.

195. Most specific sign of metabolic encephalopathy is:

a) Asterixis

b) Abulia

c) Akinetic mutism

d) Apraxia

Correct Answer - A

Ans: A. Asterixis

(Ref Harrison 19/e p1782. 2066, 1774. 18/e p199. 2259)

- The presence of asterixis on the motor examination is nonspecific but usually indicates a metabolic or toxic etiology of the delirium.
- In a drowsy and confused patient, bilateral asterixis is a certain sign of metabolic encephalopathy or drug intoxication.
- Hepatic encephalopathy is suggested by asterixis and can occur in chronic liver failure or acute fulminant hepatic failure.

196. In a patient of jaundice, absence of urobilinogen in urine indicates?

a) Obstructive jaundice

b) Hemolysis

c) Liver failure

d) Hepatitis

Correct Answer - A

Ans: A. Obstructive jaundice

(Ref Harrison 19/e p280, 18/e p325)

- Absence of urinary urobilinogen is usually suggestive of obstructive jaundice.

Function test	Prehepatic jaundice	Hepatic jaundice	Post-hepatic (Obstructive)
Total bilirubin	Normal/ increased	Increased°	Increased°
Conjugated bilirubin	Normal	Increased°	Increased°
Unconjugated bilirubin	Normal/ increased	Increased°	Normal
Urobilinogen	Normal/ increased	Decreased°	Decreased/ negative°
Urine color	Normal	Dark (urobilinogen + conjugated bilirubin)°	Dark (conjugated bil
Stool color	Normal	Normal/pale°	Pale°
Alkaline	Normal	Increased°	Increased°

phosphatase levels	Normal	increased	increased
Alanine transferase & aspartate transferase levels	Normal	Increased°	Increased°
Conjugated bilirubin in urine	Absent°	Present°	Present°
Splenomegaly	Present°	Present°	Absent°

197. Which of these is a new oral drug used in treatment of chronic Hepatitis C?

a) Interferon alpha

b) Ledipasvir

c) Oseltamivir

d) Lamivudine

Correct Answer - B

Ans: D. Lamivudine

(Ref: Harrison 19/e p2049, 18/e p2556)

Ledipasvir:

- Inhibitor of hepatitis C virus NS5A protein.
- Daclatasvir, **Ledipasvir** is one of the **newer drugs for hepatitis C**.
- Most commonly used in combination with sofosbuvir for treatment in chronic hepatitis C genotype 1 patients.
- An inhibitor of the hepatitis C virus NS5A protein.

Sofosbuvir:

- Metabolized to the active uridine analog triphosphate.
- Acts as a RNA chain terminator when incorporated into the RNA via the NS5B polymerase.

198. A 23-year-old male patient presented with a history of back pain, which is more in the morning and relieved by bathing in warm water. What is the likely additional finding present in this patient?

a) Marrow fibrosis

b) Distal phalangeal joint involvement

c) Pleural nodules

d) Decreased chest wall expansion

Correct Answer - D

Ans: D. Decreased chest wall expansion

(Ref -Harrison 19/e p2170, 18/e p2775)

- Suggestive of spondylo arthropathy, like ankylosing spondylitis.
- Ankylosing Spondylitis:**
- Leads to extra parenchymal restrictive lung disease, associated with decreased chest wall expansion.
 - Initial symptom is usually dull pain, insidious in onset, felt deep in the lower lumbar or gluteal region, accompanied by low-back morning stiffness of up to a few hours' duration that improves with activity and returns following inactivity.

199. Serology profile done for a patient is mentioned below. What is the likely cause of the abnormal findings:
HbsAg-Non-reactive
HBV DNA-Undetectable
HbeAg-Non-reactive
IgG Anti-HbC-Reactive

a) Chronic hepatitis inactive state

b) Chronic hepatitis recovery state

c) Pre-core mutant infection

d) Window period

Correct Answer - B

Ans: B. Chronic hepatitis recovery state

- From the given serology profile and table given below it is clear that the patient has had hepatitis B infection in the remote past or is a low-level Hepatitis B carrier.

Commonly Encountered Serologic Patterns of Hepatitis B Infection

HBsAg	Anti-HBs	Anti-HBc	HBeAg	Anti-HBe	Interpretation
+	-	IgM +	+	-	Acute hepatitis B, high infectivity
+	-	IgG +	+	-	Chronic hepatitis B, high infectivity ^o
					Late acute or chronic hepatitis B, low infectivity ^o HBeAg-negative

+	-	IgG	-	+	('precoremutant') hepatitis B (chronic or rarely acute)
+	+	+	+1-	+1-	HBsAg of one subtype and heterotypic anti-HBs (common) Process of seroconversion from HBsAg to anti-HBs (rare)
-	-	IgM	+/-	+/-	Acute hepatitis B° Anti-HBc 'window'0
-	-	IgG	-	+/-	Low-level hepatitis B carrier° Hepatitis B in remote past°
-	+	IgG	-	+/-	Recovery from hepatitis B° Immunization with HBsAg (after vaccination)
-	+	-	-	-	<ul style="list-style-type: none"> • Hepatitis B in the remote past (?) • False-positive

200. A 65-year-old male adult presents with chronic sinusitis, nasopharyngeal ulcers, cavitary lung nodules and renal failure. What will be the appropriate next diagnostic step?

a) Lung biopsy

b) Sputum AFB and PCR for TB

c) ANCA and evaluation for vasculitis

d) ESR

Correct Answer - C

Ans: C. ANCA and evaluation for vasculitis

(Ref Harrison 19/e p2182-2184, 18/e p2786, 2789)

- Suggestive of Wegener's Granulomatosis.

Wegener's Granulomatosis:

- c-ANCA positive small vessel vasculitis.
- levels are required for diagnosis.

Tests:

- Specificity of a positive antiproteinase-3 ANCA for granulomatosis with polyangiitis (Wegener's) is very high, especially if active glomerulonephritis is present.
- However, the presence of ANCA should be adjunctive and, with rare exceptions, should not substitute for a tissue diagnosis.

201. According to WHO guidelines, latent TB should be ruled out in all the following situations except:

a) Before treatment with TN F-alpha inhibitors

b) Chronic alcoholics

c) Silicosis

d) Hemodialysis

Correct Answer - B

Ans: B. Chronic alcoholics

- According to WHO guidelines, latent TB should be ruled out before treatment with TNF-alpha inhibitors, in patients of silicosis and patients undergoing hemodialysis among the provided options.

Specific High-risk Populations

HIV infection°

Recent contact with an infectious patient

Initiation of an anti-tumor necrosis factor (TNF) treatment°

Receiving dialysis°

Receiving an **organ or hematologic transplantation**

Silicosis°

Being in prison

Being an **immigrant from high**

TB burden countries

Being a homeless person

Being an **illicit drug user**

202. Which of the following is a new drug available to treat multi drug resistant tuberculosis?

a) Bedaquiline

b) Rifampicin

c) Linezolid

d) Cefepime

Correct Answer - A

Ans: A. Bedaquiline

(Ref. Harrison 19/e p1115, 205e-7)

- Two novel drugs belonging to two new antibiotic classes—the diarylquinoline bedaquiline and the nitroimidazole delamanid—have recently been approved for use in severe cases of MDR-TB by stringent regulatory authorities.

203. All of these are true about microalbuminuria

- a) Urine protein levels range from 20 mg/d to 200 mg/d
- b) It is an independent risk factor for cardiovascular morbidity in diabetic patients
- c) It is the earliest marker of diabetic nephropathy
- d) It is not detected by routine dipstick method

Correct Answer - A

Ans: A. Urine protein levels range from 20 mg/d to 200 mg/d

Refs Harrison 19/e p2425, 1582, 1813 18/e p2982, 29(S

Microalbuminuria:

- Defined as 30-299 mg/d in a 24-h collection or 30-299 mcg/mg creatinine in a spot collection.
- The American Diabetes Association (ADA) recently suggested that the terms previously used to refer to increased urinary protein (microalbuminuria as defined as 30-299 mg/d in a 24-h collection or 30-299µg/mg creatinine in a spot collection or macroalbuminuria as defined as >300 mg/24 h) be replaced by the phrases "persistent albuminuria (30-299 mg/24 lz)" and "persistent albuminuria (>300 mg/24 h)" to better reflect the continuous nature of albumin excretion in the urine as risk factor for nephropathy and cardiovascular disease (CVD).

204. A 29-year-old male athlete suddenly collapsed and died during a football game. At autopsy the following finding was seen on gross examination. He had a history of two similar deaths in the family previously. What is the most likely cause of death?

a) Hypertrophic cardiomyopathy

b) RHD

c) Coronary heart disease

d) Dilated cardiomyopathy

Correct Answer - A

Ans: A. Hypertrophic cardiomyopathy

(Ref. Harrison 19/e p1568, 18/e p1967).

- Suggestive of Hypertrophic cardiomyopathy.
- **Hypertrophic cardiomyopathy:**
- Macroscopically, hypertrophy is typically manifest as nonuniform ventricular thickening.
- The interventricular septum is the typical location of maximal hypertrophy, although other patterns of hypertrophic remodeling include concentric and mid-ventricular.

205. A 55- year old diabetic patient presents with transient obscuration in vision for 2-3 days followed by sudden loss of vision. Which of the following would be the best test to evaluate the symptoms?

a) Serum ACE levels

b) Quantiferon-Gold TB test

c) Elevated homocysteine levels

d) Serum creatinine levels

Correct Answer - D

Answer- D. Serum creatinine levels

DM can lead to both retinopathy and nephropathy, Serum creatinine levels would be the best for kidney function and evaluation of patient symptoms.

206. A female patient of childbearing age is on valproate for JME. Which drug should be used to replace valproate and can be prescribed as monotherapy?

a) Levetiracetam

b) Lincosamide

c) Carbamazepine

d) Phenytoin

Correct Answer - A

Answer- A. Levetiracetam

- Levetiracetam can be prescribed as monotherapy in a female patient of childbearing age is on valproate JME, because of no known significant drug interactions.
- Drug of choice for the treatment of JME is sodium valproate.
- valproate should be avoided in women of childbearing age, because of significantly increased risk of fetal malformations and neurodevelopmental delay.
- Levetiracetam or lamotrigine are alternative first-line options if valproate is contraindicated.
- Valproate is often used to treat juvenile myoclonic epilepsy.

207. A patient with Tubercular meningitis was taking ATT regularly. At end of 1 month of regular intake of drugs deterioration in sensorium is noted in condition of the patient despite good compliance for drugs. Which of the following investigations is not required as emergency condition?

a) MRI

b) NCCT

c) CSF examination

d) Liver function tests

Correct Answer - C

Answer- C. CSF examination

- Altered sensorium might be due to raised intracranial tension and lumbar puncture can precipitate the ominous herniation of the brain. So, lumbar puncture (for CSF examination) is not required on emergency evaluation in the above mentioned patient.
- Altered sensorium in a patient of Tubercular meningitis, who was taking ATT from the last one month maybe due to
- Hepatic encephalopathy secondary to hepatotoxicity of ATT. Hence, LFT should be performed.
- Diagnosis:
- Lumbar puncture is cornerstone of diagnosis (should not be done in cases of raised ICT).

- CSF examination reveals high leukocyte count (usually predominance of lymphocytes but often with a predominance of neutrophils in the early stage), a protein content of 1 to 8 g/L (100 to 800 mg/dl) and a low glucose concentration.
- Culture of CSF is diagnostic in 80% cases.
- CT or MRI may show hydrocephalus and abnormal enhancement of basal cisterns or ependyma.

208. Recently approved drug by FDA for treatment of Lennox-Gestaut syndrome:

a) Lacosamide

b) Vigabatrin

c) Zonisamide

d) Rufinamide

Correct Answer - D

Answer- D. Rufinamide

- Recently approved drug by FDA for treatment of Lennox-Gestaut syndrome is rufinamide.
- Rufinamide:
- Rufinamide was approved by the US Food and Drug Administration on November 14, 2008 as adjunctive treatment of seizures associated with Lennox-Gastaut syndrome in children 4 years and older and adults.

209. A patient with native aortic valve disease came with right hemiparesis. What will you do to prevent further stroke?

a) Antiplatelet only

b) Anticoagulant only

c) Both antiplatelet and anticoagulant

d) One dose of low molecular weight heparin sub-cutaneously followed by dual antiplatelet therapy

Correct Answer - A

Answer- A. Antiplatelet only

* Aspirin is the only antiplatelet agent that has been proven effective for the acute treatment of ischemic stroke; use of aspirin within 48 hours of stroke onset reduced both stroke recurrence risk and mortality minimally.

* Aspirin is the only antiplatelet agent that has been proven effective for the acute treatment of ischemic stroke; there are several antiplatelet agents proven for the secondary prevention of stroke.

* Two large trials, the International Stroke Trial (IST) and the Chinese Acute Stroke Trial (CAST), found that the use of aspirin within 48 hours of stroke onset reduced both stroke recurrence risk and mortality minimally.

210. Which of the following is true about CML in children?

- a) Translocation between long arm of chromosome 9 and short arm of chromosome 22
- b) Protein tyrosine kinase inhibitors are used in treatment
- c) Commonly presents as blast crisis
- d) 2nd most common leukemia in children

Correct Answer - B

Answer- B. Protein tyrosine kinase inhibitors are used in treatment

- Protein tyrosine kinase inhibitors (Imatinib mesylate) are used in treatment of CML.
 - Imatinib (Gleevec) gets rapidly become the treatment of choice for patients with chronic-phase CML.
- Treatment for CML-**
- Imatinib therapy controls blood counts and substantially decreases the risk of transformation to the accelerated phase and blast crisis, which is the greatest threat to the patient..
 - For relatively young patients, allogenic bone marrow transplantation performed in the stable phase is curative in about 75% of cases and remains the treatment of choice.
 - Imatinib (Gleevec) has rapidly become the treatment of choice for patients with chronic-phase CML.

211. Coarse tremors of tongue is seen in all except:

a) Parkinsonism

b) Alcohol

c) Thyrotoxicosis

d) General paresis

Correct Answer - C

Answer- C. Thyrotoxicosis

- Typically the tremor of Parkinson's disease is asymmetrical, at least initially, and affects an upper limb involving the ipsilateral leg after a latency of approximately two years. The disease may also produce tremor of the lips, tongue or jaw but it rarely causes significant head or vocal tremor.
- Fine tremors- Thyrotoxicosis

212. A lady developed breathlessness, pruritus, urticaria 1 hour after eating NSAIDS for headache. Chest examination was remarkable for rales with BP-80/50 mm Hg. All of following can be used for initial management except:

a) Crystalloids infusion

b) Steroids

c) Early respiratory support and oxygenation

d) Adrenaline

Correct Answer - B

Answer- B. Steroids

- Mild symptoms such as pruritus and urticaria can be controlled by administration of 0.3 to 0.5 mL of 1: 1000 (1 mg/mL) epinephrine SC or IM.
- An IV infusion should be initiated to provide a route for administration of 2.5 mL epinephrine, diluted 1: 10,000, at 5- to 10-min intervals, volume expanders such as normal saline, and vasopressor agents such as dopamine if intractable hypotension occurs.
- Oxygen alone via a nasal catheter or with nebulized albuterol may be helpful, but either endotracheal intubation or a tracheostomy is mandatory for oxygen delivery if progressive hypoxia develops.

213. A 50 years old patient presented with progressive jaundice. Liver function test was done in which conjugated serum bilirubin-4.8% and total bilirubin-6.7%, alkaline phosphatase- 550 IU, SGOT-50, SGPT-65. Most probable diagnosis is;

a) Jaundice due to choledocholithiasis

b) Dubin-Johnson syndrome

c) Viral hepatitis

d) Malignant obstructive jaundice

Correct Answer - A

Answer- A. Jaundice due to choledocholithiasis

- The maximum bilirubin level is seldom >256.5 micromol/L (15.0 mg/dl) in patients with choledocholithiasis unless concomitant hepatic disease or another factor leading to marked hyperbilirubinemia exists.'-Harrison 18/e p2625.
 - 'Serum bilirubin levels >342.0 micromol/L (20 mg/dL) should suggest the possibility of neoplastic obstruction.'-Harrison 18/e p2625
- Choledocholithiasis**
- CBD stones should be suspected in any patient with cholecystitis whose serum bilirubin level is >85.5 micromol/L (5 mg/dL).
 - The maximum bilirubin level is seldom >256.5 micromol/L (15.0 mg/dl) in patients with choledocholithiasis.

214. A 60 years old male with alcoholic liver disease presented to emergency with a history of hematemesis. Which of the following is false regarding his management'

a) Somatostatin infusion is indicated

b) Negative nasogastric aspirate does not exclude variceal bleed

c) Nasogastric tube insertion can provoke variceal bleeding

d) Upper GI endoscopy is done initially

Correct Answer - C

Answer- C. Nasogastric tube insertion can provoke variceal bleeding

- Octreotide is the preferred pharmacologic agent for initial management of acute variceal bleeding.
- Management of Acute Variceal Bleeding:**
- Patients should be admitted to an ICU for resuscitation and management.
 - Blood resuscitation should be performed to a hemoglobin level of 8 g/dL.
 - Over-replacement of packed red blood cells and the overzealous administration of saline can lead to both rebleeding and increased mortality.
 - Administration of FFP and platelets in patients with severe coagulopathy.
 - Shunt therapy (surgical shunts or TIPS) has been shown to control refractory variceal bleeding.
 - Combination of pharmacologic and EVL therapy improve initial

control of bleeding and increase the 5-day hemostasis rate.

215. A 50 years old male patient came to emergency with right hemiparesis and loss of speech for 2.5 hours. BP is 180/100. What is the next best step in the management of this patient?

a) Give antihypertensive to control BP

b) Aspirin 300 mg and anticoagulants

c) Administer t-Plasminogen activator

d) Go for NCCT

Correct Answer - D

Answer- D. Go for NCCT

- CT imaging of the brain is the standard imaging modality to detect the presence or absence of intracranial hemorrhage. If the stroke is ischemic, administration of recombinant tissue plasminogen activator (rtPA) or endovascular mechanical thrombectomy may be beneficial in restoring cerebral perfusion. Medical management to reduce the risk of complications becomes the next priority, followed by plans for secondary prevention.'- Harrison 18e/p3273.

216. A 32 years old Bengali women had fever since 48 hours with history of irrelevant talk and 2 episodes of tonic clonic seizures on succession on the way to hospital. She was previously alright. Which of the following drug can be given while rest of the investigations were being carried out?

a) IV mannitol

b) IV amphotericin B

c) IV penicillin

d) IV acyclovir

Correct Answer - D

Answer- D. IV acyclovir

- Acyclovir is of benefit in the treatment of HSV and should be started empirically in patients with suspected viral encephalitis, especially if focal features are present, while awaiting viral diagnostic studies.'- Harrison 18/e

217. A 14 years old male child presented with abnormal body movements with MRI showing signal changes in corpus striatum, thalami, pons, medulla, centrum semiovale and asymmetric diffuse white matter involvement. Most likely diagnosis is:

a) Parkinsonism

b) Nigrostriatal degeneration

c) Wilson's disease

d) Hallervorden-Spatz disease

Correct Answer - C

Answer- C. Wilson's disease

Wilson disease:

- Wilson disease usually presents with tremors, rigidity, dementia, and pseudobulbar features and has an autosomal recessive mode of inheritance.
- Slit-lamp examination of the eyes may reveal a Kayser-Fleischer ring.
- MRI in Wilson disease exhibits the characteristic changes consisting of high-intensity lesions in the basal ganglia, thalami, and mid brain on T2-weighted images. The normal low intensity of red nuclei and SN surrounded by abnormal high-signal intensity in the tegmentum of the mid brain gives rise to the typical 'face-of-the-giant-panda' sign.
- Best diagnostic clue is symmetrical T2 hyperintensity.



218. In which of the following glucocorticoid is used?

a) E.coli septicemia

b) Severe typhoid

c) Cerebral Malaria

d) Leishmaniasis

Correct Answer - B

Answer- B. Severe typhoid

- In critically ill patients with enteric fever, the administration of dexamethasone with chloramphenicol was associated with a substantially lower mortality rate than was treatment with chloramphenicol alone.

219. True about critical illness myoneuropathy?

a) Neurological recovery is completed

b) Sequential nerve demyelination followed by inflammatory myopathy during course of disease

c) Cranial nerves are involved more commonly than peripheral nerve

d) Diaphragmatic atony due to prolonged intubation may cause it

Correct Answer - D

Answer- D. Diaphragmatic atony due to prolonged intubation may cause it

- Diaphragmatic atony due to prolonged intubation may cause critical illness myoneuropathy.

Critical Illness Myoneuropathy (CIM):

- The most common causes of acute generalized weakness leading to admission to a medical intensive care unit (ICU) are GBS and myasthenia gravis. However, weakness developing in critically ill patients while in the ICU is usually caused by critical illness polyneuropathy (CIP) or critical illness myopathy (CIM).
- CIM is more common. Both CIM and CIP develop as a complication of sepsis and multiple organ failure. They usually present as an inability to wean a patient from a ventilator.

220. True about critical illness myoneuropathy?

- a) Neurological recovery is completed
- b) Sequential nerve demyelination followed by inflammatory myopathy during course of disease
- c) Cranial nerves are involved more commonly than peripheral nerve
- d) Diaphragmatic atony due to prolonged intubation may cause it

Correct Answer - D

Answer- D. Diaphragmatic atony due to prolonged intubation may cause it

- Diaphragmatic atony due to prolonged intubation may cause critical illness myoneuropathy.

Critical Illness Myoneuropathy (CIM):

- The most common causes of acute generalized weakness leading to admission to a medical intensive care unit (ICU) are GBS and myasthenia gravis. However, weakness developing in critically ill patients while in the ICU is usually caused by critical illness polyneuropathy (CIP) or critical illness myopathy (CIM).
- CIM is more common. Both CIM and CIP develop as a complication of sepsis and multiple organ failure. They usually present as an inability to wean a patient from a ventilator.

221. A patient developed sudden severe headache two hours ago and become unconscious. Upon regaining conscious, patient developed photophobia and neck rigidity, What is the next line of management?

a) Non-contrast CT scan

b) IV antibiotics

c) Lumbar puncture

d) IV mannitol

Correct Answer - A

Answer- A. Non-contrast CT scan

Diagnosis:

- Noncontrast CT scan: Investigation of choice (Lumbar puncture is not indicated prior to an imaging procedure)
- CSF picture: Hallmark of aneurysmal rupture is blood in CSF (Xanthochromic spinal fluid)
- Lumbar puncture should be performed if the CT scan fails to establish the diagnosis of SAH and no mass lesion or obstructive hydrocephalus is found to establish the presence of subarachnoid blood.

222. All of the following are true about aspiration pneumonia except:

a) Aspiration of 20-30 mL of contents with pH < 2.5 is required

b) Fungal infection is the common cause of pneumonia

c) Posterior segment of the right upper lobe is most commonly affected in the recumbent position

d) Aspiration responsible for 5-15% of community acquired pneumonia

Correct Answer - B

Answer- B. Fungal infection is the common cause of pneumonia

- Mixed polymicrobial infection involving both aerobes and anaerobes are the common cause of aspiration pneumonia, not the fungal infection.
- Incidence: It is common and may account for up to 15% of patients with community-acquired pneumonia.
- Gastric pH of 2.5 or less with a gastric contents volume greater than 25 ml are critical values for causing aspiration pneumonia.
- The posterior segments of the upper lobe and apical segments of lower lobes are most commonly involved when aspiration occurs in a supine position.
- The basal segments of the lower lobes are usually affected in patients who aspirate in an upright or semirecumbent position.

223. The most common subtype of Non-Hodgkin's lymphoma in India is:

a) Diffuse small cell lymphocytic lymphoma

b) Diffuse large B cell lymphoma

c) Follicular lymphoma

d) Burkitt's lymphoma

Correct Answer - B

Answer- B. Diffuse large B cell lymphoma

- The most common subtype of Non-Hodgkin's lymphoma in India is diffuse large B cell lymphoma.
- Diffuse large B-cell lymphoma: MC subtype (34%)
- Follicular centre-cell lymphomas: 12.6% .
- B-cell small lymphocytic lymphoma: 5.7%
- Mantle-cell lymphoma: 3.4%
- Marginal zone B-cell lymphomas (including MALT lymphomas): 8.2%

224. Which of the following is false about hemoptysis?

- a) Massive hemoptysis is bleeding > 600 ml in 24 hours
- b) In 90% cases, bleeding from bronchial arteries
- c) CT chest is the first investigation done
- d) In an unstable patient, rigid bronchoscopy is done to identify the lesion

Correct Answer - C

Answer- C. CT chest is the first investigation done

- 'For most patients, the next step in evaluation of hemoptysis should be a standard chest radiograph. If a source of bleeding is not identified on plain film, a CT of the chest should be obtained. '- Harrison I 8/e p285

225. Acquired cause of pure red cell aplasia are all except:

a) ABO incompatibility in bone marrow transplantation

b) Lymphoma

c) Drug induced-NSAIDs

d) Chromosome 5q deletion syndrome (5q monosomy)

Correct Answer - C

Answer- C. Drug induced-NSAIDs

- NSAIDs are not the cause of Acquired pure red cell aplasia.
- Acquired pure red cell aplasia:
- Cancer: Thymoma, Lymphoid malignancies, Paraneoplastic to solid tumors.
- Drugs: Phenytoin, azathioprine, Chloramphenicol, Procainamide, isoniazid

226. All of the following are criteria for admission in upper GI bleed except:

a) Shock index >1.5

b) Hematocrit $> 40\%$

c) Frank blood in nasogastric aspirate

d) BP <100 mm Hg

Correct Answer - B

Answer- B. Hematocrit $> 40\%$

- Hematocrit $> 40\%$ is not a criteria for admission in upper GI bleed.
- Shock index >1.5 , Frank blood in nasogastric aspirate and BP <100 mm Hg are the indications of hospital admission and resuscitation in upper GI bleed.

227. All of the following are true about iron deficiency anemia except:

a) Transferrin saturation <16%

b) Detected by serum ferritin levels even in earlier states

c) Mostly presents without any symptoms with abnormal laboratory findings

d) Latent anemia is most prevalent in India

Correct Answer - C

Answer- C. Mostly presents without any symptoms with abnormal laboratory findings

- Iron deficiency anemia is widely prevalent in India.
- IDA is preceded by a stage of latent iron deficiency, where serum ferritin is reduced but hemoglobin is normal.

Iron Deficiency Anemia:

- Decreased MCV and MCH
- Elevated red cell distribution width
- Increased TIBC
- Decreased serum iron
- Decreased serum ferritin
- Transferrin saturation <10.

228. Which of the following drug can be given in patients of primary pulmonary hypertension?

a) Icatibant

b) Bosentan

c) Labetolol

d) Sodium nitroprusside

Correct Answer - B

Answer- B. Bosentan

Treatment for Primary pulmonary hypertension:

CALCIUM CHANNEL BLOCKERS:

- Patients who respond to short-acting vasodilators at the time of cardiac catheterization should be treated with calcium channel blockers.
- The endothelin receptor antagonists bosentan and ambrisentan are approved treatments of PAH
- Bosentan is contraindicated in patients who are on cyclosporine or glyburide concurrently.

229. A 50 years old female on junk food diet presented with point hemorrhages in scalp, bleeding in joints and erythemataous lesions in the skin. X-ray of knee joint was suggestive of hemarthrosis. Problem lies with:

a) Hydroxylation of proline and lysine

b) Carboxylation of glutamic acid

c) Carboxylation of coagulation factors

d) Platelet aggregation defect

Correct Answer - A

Answer- A. Hydroxylation of proline and lysine

- Vitamin C is required for post-translational modification of lysine and proline in collagen synthesis
- Hydroxyproline is formed by post-translational hydroxylation catalyzed by prolyl hydroxylase, whose cofactors are ascorbic acid and Keto- alpha glutarate.

230. All of the following are true about severe malaria except:

a) Hypoglycemia, blood sugar level less than 40 mg

b) Creatinine more than 3 mg/dL

c) LDH > 750 U/L

d) Hematocrit more than 15

Correct Answer - D

Answer- D. Hematocrit more than 15

- Hematocrit <15 (not more than 15) is suggestive of severe malaria.

Manifestations of Severe Falciparum Malaria:

- Hematocrit of <15% or hemoglobin level of <50 g/L (<5 g/dl) with parasitemia level of > 100,000/microL
- Serum creatinine level of >265 micromol, {L (>3 mg/dl)
- Plasma glucose level of <2.2 mmol/L (<40 mg/dL)

231. Two persons A and B were told to draw a square from the blank and filled circle, respectively. The square drawn by A is irregular. What could be the possible cause?

a) Lesion in basal ganglia

b) Lesion in subthalamic nucleus

c) Lesion in cerebellum

d) Physiological tremors

Correct Answer - C

Answer- C. Lesion in cerebellum

The square drawn by A shows intentional tremors, which is a clinical manifestation of cerebellar lesion.

232. Nobel prize for medicine/physiology in 2018 for the discovery of:

a) Apoptotic pathway

b) Crispr-Cas9

c) Negative immune regulation

d) Molecular mechanisms controlling circadian rhythm

Correct Answer - C

Ans. C. Negative immune regulation

- Nobel Prize in Physiology or Medicine jointly, has been awarded to James P. Allison/Tasuku Honjo for their discovery of cancer therapy by inhibition of negative immune regulation.
- James P. Allison studied a known protein that functions as a brake on the immune system. He realized the potential of releasing the brake and thereby unleashing our immune cells to attack tumors.
- Cytotoxic T-Lymphocyte-associated Antigen 4 (CTLA-4) and Programmed Death 1 (PD-1) immune checkpoints are negative regulators of T-cell immune function. Inhibition of these targets, resulting in increased activation of the immune system, has led to new immunotherapies for melanoma, non-small cell lung cancer, and other cancers.
- For several types of cancer, including lung cancer, renal cancer, lymphoma and melanoma checkpoint therapy against PD-1 has proven more effective and positive results found.
- But recent clinical studies indicate that for melanoma the combination therapy of both CTLA-4 and PD-1 is more effective.
- Thus, Allison and Honjo combine different strategies to release the brakes on the immune system with the aim of eliminating tumor cells even more efficiently.

- Their paper formed the basis of current cancer immunotherapy.
- But the original concept of cancer immunotherapy was discovered by William Bradley Coley (1872).

233. While measuring blood pressure of a cardiac tamponade patient, what advice will you give him:

a) Hold breath

b) Breathe normally

c) Long and deep breathing

d) Short and shallow breaths

Correct Answer - B

Ans. b. Breathe normally

- Paradoxus requires the patient to breathe normally and does not require any special maneuver.
- BP is best measured in the seated position with the arm at the level of the
- heart, using an appropriately sized cuff, after 5-10 minutes of relaxation.
- In Supine position: The arm should be raised to bring it to level of mid-tight atrium.

234. ECG with "mean" axis of 90°. In which lead there would be the maximum voltage of R wave?

a) III

b) I

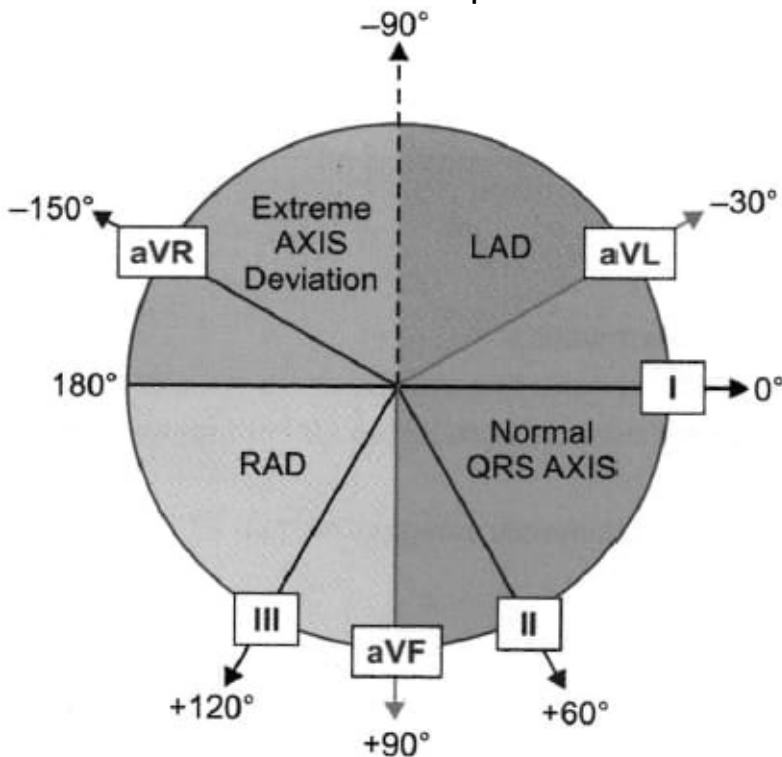
c) aVF

d) aVL

Correct Answer - C

Ans. C. aVF

- 90° cardiac axis corresponds straight to lead aVF and hence as such maximum 'It' wave amplitude would be seen in that lead only.





235. Which of the following is not done before ABG:

a) Allen's test

b) Heparin to rinse the syringe

c) Flexion of wrist

d) Poking at 45° angle

Correct Answer - C

Ans. C. Flexion of wrist

- While taking ABG — wrist is generally kept in hyperextension. This is to make the vessel straight and to fix the position (because of tension in hyperextension).
- Flexion will make the vessel loose and the vessel will slip easily while poking.
- ABG is painful, and radial artery spasm can result in ischemia of the hand in patients with radial dominant circulation.

236. A patient who is a known case of CKD has complaints of vomiting. His ABG reports are as follows: pH - 7.40, pCO₂ - 40, HCO₃ - 25. Na -145, chloride-100.

a) Normal anion gap met acidosis

b) High anion gap met acidosis

c) No acid base abnormality

d) High anion gap metabolic acidosis with metabolic alkalosis

Correct Answer - D

Ans. D. High anion gap metabolic acidosis with metabolic alkalosis

- Even though ABG looks completely normal - clinical history is the key here.
- CKD patients generally have high AG metabolic acidosis. On the background of that he has developed vomiting (which is an alkalotic state). Both opposing disorders have normalized the ABG. But the patient is actually having a double disorder.

237. What is the difference between RIFLE & KDIGO criteria in differentiating a tubular injury?

a) Uosm

b) Urinary Na

c) Urinary NGAL

d) $FeNa = \frac{U_N \times S_{Cr}}{S_{Na} \times U_{Cr}}$

Correct Answer - C

Ans. C. Urinary NGAL

- **RIFLE** originally used urinary sodium, urine osmolarity, Fe_{Na} to define tubular dysfunction/injury.
- Currently **urinary NGAL/Kim-1/Cystatin C/L-FABP** all are being **evaluated** as more sensitive and specific markers of tubular injury (KDIGO 2017/18).

238. Death due to smoke inhalation is due to:

a) Hypoxemia

b) Anemic hypoxia

c) Ischemic hypoxia

d) All of the above

Correct Answer - B

Ans. b. Anemic hypoxia

- In smoke/fire patient generally dies of excess CO poisoning (most frequent cause of death).
- If there is low PaO₂, - it is called as hypoxic hypoxia.
- In smoke (CO poisoning) PaO₂, will be normal and the problem is COHb.
- An abnormal Hb or Reduced Hb concentration comes under anemic hypoxia.

239. Patient who is a known case of thalassemia major already on repeated blood transfusions with history of iron overload previously treated with chelating agents. She also has a history of cardiac arrhythmia. She came for BT now. During BT patient complained of backache and looks extremely anxious. What is next management?

a) Observe for a change in colour of the urine

b) Continue BT, do ECG

c) Stop BT and wait for patient to get normal and start

d) Stop BT and Do clerical check

Correct Answer - D

Ans. d. Stop BT and do clerical check

The patient has ominous signs of a major Acute Hemolytic transfusion reaction (Backache/anxiety).

STOP THE TRANSFUSION WITHOUT ANY DELAY.

Also further work up is mandatory (especially the basic clerical work like checking the blood product details and cross matching reports) and do not restart transfusion until it is complete

240. Relative bradycardia is uncommon in:

a) Brucellosis

b) Typhoid

c) Malaria

d) Factitious fever

Correct Answer - C

Ans. C. Malaria

- Relative bradycardia at the peak of high fever is the early findings in <50% cases of typhoid.
- The presentation of Brucellosis often fits three patterns, among one febrile illness that resembles to typhoid, but it is less severe. Relative bradycardia seen in this case.
- In malaria relative bradycardia is uncommon.

241. A young donor came to the blood bank for the first time for platelet apheresis with platelet count of 1.9L. During the course he developed paresthesias, circumoral numbness during donation. His vitals remain stable though. ECG showed tachycardia with ST-T changes. What is the reason for his symptoms?

a) Hypovolemic shock

b) Hypocalcemia

c) Seizures

d) Allergic reaction

Correct Answer - B

Ans. b. Hypocalcemia

- Clinical findings of paresthesias, circumoral numbness and ECG showing tachycardia with ST-T changes are highly suggestive of hypocalcemia, which has been caused by extensive transfusion of citrated blood.
- "Citrate, commonly used to anticoagulate blood components, chelates calcium and thereby inhibits the coagulation cascade. Hypocalcemia, manifested by circumoral numbness and/or tingling sensation of the fingers and toes, may result from multiple rapid transfusions."-H,
- "Transient hypocalcemia is seen with severe sepsis, burns, acute kidney injury, and extensive transfusions with citrated blood.

242. A 59 years old male patient presented with complaints of right-sided facial weakness and loss of sensation on right side of the face with left sided hemiparesis. Examination reveals Horner's syndrome, nystagmus, vertigo, ataxia and dysphagia. The patient is not able to balance himself. What is the most common cause of this presentation?

a) Due to occlusion of right posterior inferior cerebellar artery

b) Due to occlusion of basilar artery

c) Due to occlusion of left posterior inferior cerebellar artery

d) Due to occlusion of anterior inferior cerebellar artery

Correct Answer - A

Ans: A. Due to occlusion of right posterior inferior cerebellar artery

(Ref Gray's' 40/e p251; Harrison 19/e p2577).

- This case is highly suggestive of lateral medullary syndrome.
Lateral medullary syndrome:
- Also referred as "Wallenberg's syndrome".
- Caused by occlusion of any of five vessels.
- Mainly vertebral, posterior inferior cerebellar, superior, middle, or inferior lateral medullary arteries.
- Embolic occlusion/thrombosis of ipsilateral V4 (4th segment of vertebral artery) segment → Lateral medulla ischemia.

- PICA occlusion also.
Features:
- Constellation of vertigo, numbness of ipsilateral face & contralateral limbs, diplopia, hoarseness, dysarthria, dysphagia & ipsilateral Homer's syndrome.
Partial syndromes:
- Due to occlusion of medullary penetrating branches of vertebral artery or PICA.
Hemiparesis:
- Not a feature of vertebral artery occlusion.
Quadriparesis:
- Due to anterior spinal artery occlusion.

243. Hypereosinophilic syndrome is a disease characterized by elevated eosinophil count in the blood for at least 6 months, without any recognizable cause, with involvement of either heart, nervous system or bone marrow. What should be the eosinophil count for diagnosis?

a) $>500/\text{mm}^3$

b) $>1000/\text{mm}^3$

c) $>1500/\text{mm}^3$

d) $>2000/\text{mm}^3$

Correct Answer - C

Ans: C. $>1500/\text{mm}^3$

(Ref Harrison 19/e p1686, 135e-8, 18/e p481 e-21.5)

- Eosinophil count for hypereosinophilia syndrome diagnosis = $>1.5 \times 10^9/\text{L}$ ($>1500/\text{mm}^3$).

Blood Eosinophilia:

- Neither secondary or clonal.
- **Cause:** Idiopathic.

Hypereosinophilic Syndrome (HES):

- Subcategory of idiopathic eosinophilia with persistent increase of AEC to $>1.5 \times 10^9/\text{L}$ ($>1500/\text{mm}^3$).

Features:

- Presence of eosinophil-mediated organ damage –
- Cardiomyopathy, gastroenteritis, cutaneous lesions, sinusitis,

pneumonitis, neuritis & vasculitis.

- Also thromboembolic complications, hepatosplenomegaly & either cytopenia or cytosis.

244. A patient presented with history of vomiting for last three days. On examination, signs of dehydration were present. On further investigation, the patient was found to have raised creatinine, a pH = 7.22, pCO₂ = 21 mm Hg, HCO₃ = 9 mEq/L, = 138 mEq/L and IC = 3.4 mEq/L. Identify the acid base abnormality observed in this patient:

a) Metabolic acidosis

b) Metabolic alkalosis

c) Mixed metabolic acidosis and respiratory alkalosis

d) Mixed respiratory acidosis and metabolic alkalosis

Correct Answer - A

Ans: A. Metabolic acidosis

(Ref: Harrison 19/e p317, 18/e p365)

- Acidosis as pH = 7.22
- HCO₃ = 9 mEq/L (1° change in HCO₃ is termed as Metabolic)
- **Expected compensation for metabolic acidosis = Respiratory alkalosis, low pCO₂ & compensation.**

245. Calculate the base deficit in a patient of weight 75 kg with a pH = 6.96, pCO₂ = 30 mm Hg and HCO₃⁻ = 6 mEq/L:

a) 300 mEq

b) 400 mEq

c) 500 mEq

d) 800 mEq

Correct Answer - C

Ans: C. 500 mEq

(Ref Harrison 19/e p317, 12/e p368).

- Base deficit in question = 400 mEq.
- **Base excess & base deficit:**
- Refer to an excess or deficit respectively in amount of base present in blood.
- Total bicarbonate deficit = 0.3 x weight (kg) x base deficit
- Base deficit in mEq = 0.4 x weight (kg) x [24- serum HCO₃ (mEq/L)]
- Total Base Deficit = (24-6) x 0.4 x 75 = 540 mEq = 500 mEq (approx.)
- To obtain deficit in grams, divide mEq by 12.

246. About anti-epileptic drugs, which of the following is an incorrect match?

Focal seizures Lamotrigine, Carbamazepine, Phenytoin Valproate

Absence seizure Carbamazepine Ethosuximide, Valproate

Myoclonic seizures Valproate, Lamotrigine Clonazepam

Generalized tonic clonic seizures Valproate, Lamotrigine, Topiramate Phenytoin, Carbamazepine

a) 1

b) 2

c) 3

d) 4

Correct Answer - B

Ans: B. 2

(Ref Harrison 19/e p2552, 18/e p3262; Goodman Gillman 11 /e p605)

Typical absence seizures – Treatment:

- Ethosuximide - 1st line drug.
- Carbamazepine & phenytoin - Contraindicated.
- Ethosuximide & valproate - Equally effective.

247. An 80 kg male patient presented to the emergency with hypotension and you have been instructed to start him on an inotrope at a dose of 10 mcg/kg/min. Each 5 mL amp of the drug contains 200 mg drug. You choose 2 ampules of the drug and decide to mix it with saline to make a 250 mL solution. What should be the flow rate of the drug solution to maintain the BP of the patient (assuming 16 drops = 1 mL)?

a) 4 drops/min

b) 8 drops/min

c) 10 drops/min

d) 16 drops/min

Correct Answer - B

Ans: B. 8 drops/min

- A dosing of 10 mgm/kg/min of drug is required
- Weight = 80 kg
- Total dose required = $10 \times 80 = 800$ mgm/min = 0.8 mg/min
- Now two 5 mL vials each containing 200 mg is diluted to a 250 mL solution.
- i.e. 400 mg is mixed in 250 mL
- Concentration of solution: $1 \text{ mL} = 400/250 = 1.6$ mg/mL

- Now, 1 mL 16 drops = 1.6 mg i.e. 16 drops contain 1.6 mg
- Hence, 0.8 mg/min = 8 drops/min = 0.5 mL/min

248. An 86 years old lady presented with severe constipation. She was a known hypertensive on medications for 10 years. In clinic, her BP was 157/98 mm Hg with a heart rate of 58/min. On taking here BP in the supine position it was found to be 90/60 mm Hg. She had the recent history of depression. She is taking atenolol, thiazide, imipramine, haloperidol and docusate. What will be the next best step in the management?

- a) Change atenolol and thiazide to calcium channel blocker and ACE inhibitor and add bisacodyl for constipation
- b) Change imipramine and haloperidol to fluoxetine and risperidone and add bisacodyl for constipation
- c) Only add bisacodyl for constipation and continue rest of the medications
- d) Discontinue all her medications and start her on steroids

Correct Answer - B

Ans: B. Change imipramine and haloperidol to fluoxetine and risperidone and add bisacodyl for constipation

(Ref Harrison 19/e p1623-1624, 18/e p3531: Goodman Gilman 12/e p410. 1333)

Effects of Imipramine:

- Postural hypotension - Due to alpha blockade by Imipramine & thiazides interaction.
- Anti-cholinergic side-effect.
 - Hence, Imipramine (TCA) must be discontinued.
 - Should be started on SSRI, fluoxetine & laxative (existing constipation).
- **Effect of haloperidol:**
 - Anti-cholinergic side effects.
 - Should start on atypical antipsychotic Risperidone.

249. A 42 years old male patient presented with jaundice. His AST was 48 U, ALT was 51 U, ALP, GGTP were normal. Ultrasound of liver was suggestive of cirrhosis. Viral markers were done and the following results were obtained.

Test	Result
Anti-HAV	Negative
Anti-HBsAg	Negative
Anti-HBeAg	Negative
Anti-HBcAg IgG	Positive
Anti-HBcAg IgM	Negative
HBsAg	Negative
Anti-HCV	Positive
Anti-HEV	Negative

What is the next best step in management of this patient?

a) Start interferon therapy

b) Liver biopsy

c) RT-PCR for hepatitis C virus

d) PCR for HBV-DNA

Correct Answer - C

Ans: C. RT-PCR for hepatitis C virus

(Ref Harrison 19/e p2017, 2018: 18/e p2551)

Positive Anti-HBcAg IgG:

- Mere indicator of hepatitis B infection in past.
- **Positive Anti-HCV antibody:**
- Most sensitive indicator of HCV infection - Presence of HCV.
- Presence of Anti-HCV antibody points to hepatitis C infection → Hence HCV-RNA levels determined to establish chronic hepatitis C diagnosis before starting Interferon therapy.
- Requires molecular amplification by PCR.
- Testing for HCV RNA or repeat anti-HCV testing later stages - Necessary to establish diagnosis.

250. A 25 years old unidentified male from roadside was brought by police to emergency room with disorientation, altered sensorium and vomiting. He had a BP of 90/70 mm Hg, heart rate of 110/min, temperature –36.4°C and respiratory rate of 11/min. On examination, he had bilateral pin-point pupils. What is the most probable diagnosis?

a) Pontine hemorrhage

b) Hypothermia

c) Dhatura poisonine

d) Opioid poisoning

Correct Answer - D

Ans: D. Opioid poisoning

(Ref: Harrison 19/e p 1774, 2583, 18/e p3295)

- Findings in question represents hallmark sign of opiate overdose.

Opioid overdose triad:

- Decreased level of consciousness + Pinpoint pupils + Respiratory depression.

Other Signs & symptoms:

- Hypotension, Seizures & muscle spasms.
- All secretions are suspended except sweat.

Treatment:

- Specific opioid antagonist - Naloxone.
- Effective at reversing the cause, rather than just the symptoms, of an opioid overdose)

251. Continuous murmur can be heard in all except:

a) VSD with aortic regurgitation

b) Coronary AV fistula

c) Pulmonary AV fistula

d) Patent ductus arteriosus

Correct Answer - A

Ans: A. VSD with aortic regurgitation

(Ref Harrison 19/e p51e-2, 1449, 18/e p 1829)

VSD with aortic regurgitation:

- Produces pansystolic & early diastolic murmur, not continuous.

Continuous murmur:

- Classic example – PDA.
- Usually heard in second or third interspace.
- At a slight distance from sternal border.

Other causes:

Causes of Continuous Murmurs

Continuous murmur caused by blood flow

Venous hum
Mammary

Continuous murmurs caused by high-to-low pressure shunts

Systemic artery to pulmonary artery

Patent ductus arteriosus^o
Aortopulmonary window

Coronary AV fistula

Left-to-right atrial shunting

Continuous murmurs secondary to localized arterial obstruction

Coarctation of aorta
Branch pulmonary artery

souffle	Truncus arteriosus°	Lutembacner syndrome	stenosis
Hemangioma	Pulmonary atresia°	Mitral atresia plus atrial septal defect	Carotid artery occlusion
Hyperthyroidism	Anomalous left coronary artery	Venovenous shunts	Celiac mesenteric occlusion
Acute alcoholic hepatitis	Sequestration of the lung	Anomalous pulmonary veins	Renal artery occlusion
Hyperemia of neoplasm	Systemic artery to right heart	Portosystemic shunts	Femoral artery occlusion
Hepatoma	Ruptured sinus of Valsalva°	Bronchiectasis	Coronary artery occlusion
RCC	AV fistula (systemic or pulmonic)°		
Paget's disease			

252. Metered Dose Inhalers are used in management of asthma. To use a MDI, it is recommended to shake well before use, breathe out, bring the inhaler to your mouth, start to breathe in slowly, press the top of you inhaler once and keep breathing in slowly until you have taken a full breath and then hold your breath for 10 seconds. Some patients might need a second puff of MDI for symptomatic relief. Which of these instructions for re-using the MDI is not correct?

a) Wait for 1 minute between two puffs

b) Shake the inhaler again before use

c) Carefully rinse your mouth and throat

d) Clean the inhaler before use

Correct Answer - D

Ans: D. Clean the inhaler before use

(Ref Ghai 8/e p387; GINA Guidelines-Asthma Prevention & Management (2016).

- Between two uses rinse mouth.
- Spit the water out - Especially if it is a steroid inhaler.

- Inhaler needn't be cleaned.
- Cleaned on weekly basis with warm running water for 30 seconds & dry it completely.
- On blocked mouthpiece - Washing helps.

253. Which of the following is not true regarding iron supplementation in iron deficiency anemia?

a) Administer a small diluted dose first prior to infusion to look for any allergy to iron preparation

b) Oral iron therapy should be stopped once the patient achieves a hemoglobin of >12 mg/dL

c) If gastric intolerance to oral iron therapy occurs, all patients should be administered parenteral forms

d) Parenteral iron supplementation is required in a patient with Hb of less than 7 mg/dL

Correct Answer - B

Ans: B. Oral iron therapy should be stopped once the patient achieves a hemoglobin of >12 mg/dL

(Ref: Harrison 19/e p629. 18/e p849)

Iron-deficiency anemia - Goal of therapy:

- Not only repair anemia.
- Provide stores of at least 0.5-1 g of iron.
- Sustained treatment for period of 6-12 months after anemia correction necessary to achieve stores.

254. A patient presents to the emergency with altered sensorium. All of these tests should be done except:

a) Complete blood counts

b) Random blood sugar

c) Lumbar puncture

d) Non-contrast CT head

Correct Answer - C

Ans: C. Lumbar puncture

(Ref Harrison 19/e p1773, 18/e p2251)

- Recommends imaging study prior to lumbar puncture.
- **Excludes raised ICP causes (large intracranial mass lesion) → Preventing herniation.**

255. A patient diagnosed with carcinoma of lung presented with a serum calcium level of 16.4 mmol/L. What will be the first step in management?

a) IV fluids and furosemide

b) Immediate hemodialysis

c) Bisphosphonates

d) Chemotherapy with gemcitabine and carboplatin

Correct Answer - A

Ans: A. IV fluids and furosemide

(Ref Harrison 19/e p314; 18/e p361)

Hypercalcemia - Initial therapy:

- Begins with volume expansion to prevent dehydration.
- 4-6 L of intravenous saline required over 1st 24 hr.

Use of loop diuretics:

- Enhances sodium & calcium excretion.
- Treats underlying co-morbidities (e.g., congestive heart failure).
- Used only when volume is stable & normal.

256. About Transfusion Related Acute Lung Injury (TRALI), all of the following are true except:

a) Signs and symptoms usually subsides within 2-3 weeks of onset

b) Supportive care is the mainstay of treatment

c) Steroids have a doubtful role in management

d) Mortality is less than 10%

Correct Answer - A

Ans: A. Signs and symptoms usually subsides within 2-3 weeks of onset

(Ref Harrison 19/e p138e-5, 18/e pg 1217 Wintrobe's 14/e p 575)

TRALI – Treatment & recovery:

- Recovery within 2-3 days (instead of 2-3 weeks).
- No definitive treatment.

Supportive care:

- Patient's oxygenation improves & return to normal in 2-3 days.

257. Which of the following infections causes a non-centrally distributed rash?

a) Epidemic typhus

b) Measles

c) Secondary syphilis

d) Typhoid

Correct Answer - A

Ans: A. Epidemic typhus

(Ref: Harrison p1158, 1051, 1297, 1135)

Centrifugal rash:

- Starts from face or trunk centrally à moves to extremities peripherally.

Centripetal rash:

- Starts from extremities peripherally à moves to trunk & face centrally.

Non-centripetally distributed (centrifugal) rash:

- Seen in epidemic typhus.

Epidemic typhus:

- Rash begins on upper trunk on 50th day.
- Later becomes generalized – (Involves entire body except face, palms & soles).
- Initially à macular rash.
- Progresses to maculopapular, petechial & confluent.

258. Cerebellar lesion can produce all of the following except:

a) Nystagmus

b) Past pointing

c) Resting tremor

d) Ataxic gait

Correct Answer - C

Ans: C. Resting tremor

(Ref Harrison 19/e p2618, 18/e p3238)

- **Intention tremors - Cerebellar lesions.**
- **Resting tremors - Basal ganglia diseases (Parkinsonism).**
Parkinson disease:
- Characterized by resting tremor, essential tremor (ET) by a postural tremor (trying to sustain a posture).
- **Cerebellar disease:**
- Tremors by intention or kinetic tremor (on reaching to touch a target).

259. A 40 years old female is diagnosed to have epilepsy and is started phenytoin and valproate. Four weeks later, she developed a diffuse rash all over her body, which gradually disappeared on stopping both the drugs. In how many weeks, will the rash reappear when she is re-challenged with phenytoin and valproate?

a) 1 day

b) 1 week

c) 2 weeks

d) 4 weeks

Correct Answer - A

Ans: A. 1 day

(Ref: Harrison 19/c p382, 18/c p3263; Goodman Gillman 12/c p592; Andrews' Diseases of the Skin: Clinical Dermatology By William D. James Timothy Berger, Dirk Elstoulp 113)

Phenytoin Hypersensitivity Syndrome (PHS):

- Hypersensitivity due to anti-epileptic drugs.
- Type 4 Hypersensitivity reaction (Steven-Johnson Syndrome).
- Usually at 3-4 weeks.
- **On re-challenging drug → pre-formed mediators released much quicker → Causes rashes → On same day of starting treatment.**

260. Which of the following is not true about the salivary gland output in Sjogren's syndrome?

a) Increase in sodium concentration

b) Increase in phosphate concentration

c) Decreased output of salivary glands <0.5 ml/min

d) Increase in IgA concentration

Correct Answer - B

Ans: B. Increase in phosphate concentration

(Ref Harrison 19/e p2166; Oxford Textbook of Rheumatology 4/e p1049, Textbook of Oral & Maxillofacial Surgery (Elsevier)/402)

- Phosphate concentration of saliva is decreased in Sjogren's syndrome.

Sjogren's syndrome:

- Increased sodium & chloride concentration.
- Decreased phosphate concentrations.
- Increased IgA.
- Decreased salivary flow rate.

261. A patient was found to have splenomegaly, anemia and jaundice. All of the following is true about this condition except:

a) Increased urobilinogen

b) Increased LDH

c) Decreased haptoglobin

d) Low reticulocyte count

Correct Answer - D

Ans: D. Low reticulocyte count

(Ref: Robbins 9/e p 631, 632)

- A reactive increase in reticulocyte count occurs in hemolytic anemias due to increased erythropoiesis.
Hemolytic anemia:
- Anemia & lowered tissue oxygen tension → Triggers erythropoietin production → Stimulates erythroid differentiation → Appearance of increased numbers erythroid precursors (normoblasts) in marrow. Compensatory increases in erythropoiesis → Results in reticulocytosis in peripheral blood.

262. Which of the following is the best test for assessment of intestinal malabsorption?

a) Fecal fat estimation

b) Serum lactose levels

c) Serum amylase levels

d) NBT-PABA test

Correct Answer - A

Ans: A

(Ref: Harrison 19/c p193(S))

- Fecal fat estimation - Gold standard test for diagnosis of malabsorption.

Intestinal malabsorption diagnosis:

- D-xylose test.
- Tests for xylose absorption in intestinal villi.
- Distinguishes intestinal from pancreatic malabsorption.

Pancreatic malabsorption diagnosis:

- NBT-PABA & serum amylase.

263. All are true about isolated aortic stenoses except:

a) Pulsus bisferiens

b) Cardiac apex is displaced laterally to left

c) Thrill in carotid artery

d) Blood pressure maintained in initial phase

Correct Answer - A

Ans: A. Pulsus bisferiens

(Ref Harrison 19/e p15.31, 1536, 18/e p1939)

- Pulsus bisferiens is seen in a patient of aortic stenosis (AS) along with aortic regurgitation (AR) and is rare in isolated AS.
- The cardiac apex is usually displaced to left because of left ventricular hypertrophy.
- In some patients with AR or with combined AS and AR, the carotid arterial pulse may be bisferiens, i.e., with two systolic waves separated by a trough.

264. Tourniquet test is used in daily follow-up of patients with:

a) Zika virus

b) Dengue virus

c) Chikungunya

d) Swine flu

Correct Answer - B

Ans: B. Dengue virus

(Ref: Harrison 19/e p1322)

- Tourniquet test is used in daily follow up of patients with dengue virus
- **The tourniquet test (capillary-fragility test):**
- Part of the new WHO case definition for dengue.
- The test is a marker of capillary fragility and it can be used as a triage tool to differentiate patients with acute gastroenteritis, for example, from those with dengue.
- It is a clinical diagnostic method to determine a patient's hemorrhagic tendency, fragility of capillary walls and thrombocytopenia.

265. In a patient with dengue hemorrhagic fever, which of the following is most important to monitor?

a) Hemoglobin

b) TLC

c) Platelet count

d) Hematocrit

Correct Answer - D

Ans: D. Hematocrit

(Ref: Harrison 19/e p1319, 1322)

- In a patient with dengue hemorrhagic fever (DHF), hematocrit is most important parameter to monitor. Diagnosis of DHF needs the presence of rise in hematocrit 420% or more i.e. Hemoconcentration.
- Despite the name, the critical feature that distinguishes DHF from dengue fever is not hemorrhaging, but rather plasma leakage resulting from increased vascular permeability

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266. In a patient with post-tuberculosis bronchiectasis, which of the following will you observe on auscultation?

a) Late inspiratory crackles

b) Bibasilar crepts

c) Both early and late inspiratory crackles

d) Tubular breath sounds

Correct Answer - C

Ans: C. Both early and late inspiratory crackles

(Ref: Harrison 19/e p1661-1665, 18/e p2143)

- Post-tuberculous bronchiectasis affect one lung only & produce coarse crackles, which are usually biphasic.
- Bibasilar crepitations:**
- Typical of fluid overload (due to pulmonary edema).
 - Occur in both inspiration and expiration. Combination of coarse and fine crackles.
 - Feature of bronchiectasis.
 - Related to a combination of secretions and increased compliance of the walls in larger airways."
 - Late inspiratory fine crackles – In COPD or pneumonia.
 - Tubular breathing – In Lung consolidation.

267. You have performed a pleural tap in a patient with suspected TB. You will send the sample for all of the following studies except:

a) Gene Xpert

b) ADA

c) LDH

d) Albumin

Correct Answer - D

Ans: D. Albumin

(Ref: Harrison 19/c p1715-1716)

- The most important diagnostic tests in pleural fluid specimen in a patient with suspected TB are GeneXpert (PCR) and ADA levels.
- Total protein levels and LDH levels are required to differentiate between transudative and exudative effusion according to Light's Criteria.
- So doing a pleural fluid albumin level separately will not be very useful.
- Total protein estimation should be done instead.

268. All of the following are indications for thrombolysis in a patient with stroke except:

a) Age <18 years

b) Sustained BP >185/110 mm Hg despite treatment

c) On CT scan, edema less than 1/3rd of middle cerebral artery territory

d) Acute ischemic stroke within 3 hours of onset

Correct Answer - B

Ans: B. Sustained BP >185/110 mm Hg despite treatment
(Ref: Harrison 19/e p759, 1605, 18/e p3273)

- A sustained BP >185/110 mm Hg despite treatment is a contraindication for thrombolytic therapy as it may lead to hemorrhage.

Administration of IV Recombinant Tissue Plasminogen Activator (rtPA) for Acute Ischemic Stroke:

Indication

Clinical diagnosis of stroke
Onset of symptoms to time of drug administration <3 hours
CT scan showing no hemorrhage or edema of >1/3 of the MCA territory
Age > 18 years

Contraindication

Sustained BP >185/110 mm Hg despite treatment
Platelets <100,000; HCT <25%; glucose <50 or >400 mg/dL
Use of heparin within 48 hours & prolonged PTT, or elevated INR

269. A 40 years old female presented with acute onset shortness of breath. She has a history of nephrotic syndrome 1 year back and recent prolonged air travel. She has a BP of 90/60 mm Hg, heart rate of 115 per minute and sinus tachycardia on ECG. A 2-D echocardiogram revealed dilation of right ventricle with bulging of the interventricular septum to the left. What will be the primary treatment modality?

a) Thrombectomy

b) Intravenous tissue plasminogen activator

c) Unfractionated heparin

d) d. IVC filter

Correct Answer - B

Ans: B. Intravenous tissue plasminogen activator
(Ref: Harrison 19/e p1634-1636, 18/2170-2177)

- Findings indicate patient most probably suffering from massive pulmonary embolism.

Management of Massive Pulmonary Embolism:

- For patients with massive PE & hypotension, replete volume with 500 mL of normal saline.
- Additional fluid should be infused with extreme caution-

- Due to excessive fluid administration exacerbates RV wall stress à more profound RV ischemia & worsens LV compliance and filling.
- Dopamine & dobutamine – 1st line inotropic agents for PE-related shock treatment.

Fibrinolysis in Massive Pulmonary Embolism:

- Preferred fibrinolytic regimen: Recombinant tissue plasminogen activator (tPA).
- Contraindications: Intracranial disease, recent surgery & trauma.

270. A patient with suspected cardiac tamponade presents to the AIIMS emergency. You are asked to monitor BP of this patient. All the following precautions should be taken except:

a) Patient should be asked to take deep breaths

b) The cuff pressure should be increased to 20 mm over systolic pressure

c) The cuff should be slowly deflated until the first Korotkoff sound is heard only during expiration

d) Pulses paradoxus may not be present

Correct Answer - C

Ans: C. The cuff should be slowly deflated until the first Korotkoff sound is heard only during expiration

(Ref: Harrison 19/e p1621, 1446 18/e p1825; Ganong 25/e p517)

- The cuff is slowly deflated and the paradoxical pulse is recorded from the point when first Korotkoff sound is heard only during expiration to when it is heard in both expiration and inspiration.
Pulsus paradoxus:
- Quantified using a blood pressure cuff and stethoscope (Korotkoff sounds), by measuring the variation of the systolic pressure during expiration and inspiration.
- **Inflate cuff until no sounds (as is normally done when taking a BP) slowly decrease cuff pressure until systolic sounds are first heard during expiration but not during inspiration, (note this reading), slowly continue decreasing the cuff pressure until**

sounds are heard throughout the respiratory cycle, (inspiration and expiration) (note this second reading).

- If the pressure difference between the two readings is $>10\text{mm Hg}$, it can be classified as pulsus paradoxus.

271. A 27 years old pregnant lady comes with severe jaundice and altered sensorium. On examination, the patient is deeply icteric, not responding to commands and pelvic sonogram reveals intrauterine fetal death. Serum bilirubin levels are 28.8 mg/dL (direct = 18.6 mg/dL), AST levels are 1063 and ALT levels are 1191. The viral markers are as follows. What is the likely diagnosis?

Anti-HAV IgG Reactive
Anti-HAV IgM Nonreactive
HbSAg Non reactive
Anti-HbSAg Nonreactive
Anti-HBc IgM Nonreactive
Anti-HBc IgG Reactive
Anti-HCV IgG Nonreactive
Anti-HEV IgM Reactive
Anti-HEV IgG Non reactive

a) Acute hepatitis E superimposed on chronic liver failure due to hepatitis B

b) Fulminant hepatitis due to hepatitis B infection

c) Acute hepatitis E with chronic hepatitis A

d) Fulminant hepatitis due to hepatitis E infection

Correct Answer - D

Ans: D. Fulminant hepatitis due to hepatitis E infection

(Ref: Harrison 191e p2018, 18/e p2546)

- In the question, anti-HBc IgG is reactive but HbsAg is negative, the case is a recovered case from hepatitis B.
- Hepatitis A is rarely chronic, can be ruled out from the given options.
- Anti-HAV IgG suggests recovered case from HAV infections.
- Anti-HEV IgM is an indicator of acute hepatitis E infection.
- History of pregnancy and high serum bilirubin with raised AST and ALT is suggestive of fulminant hepatitis E.

Commonly Encountered Serologic Patterns of Hepatitis B Infection

HBsAg	Anti-HBs	Anti-HBc	HBeAg	Anti-HBe	Interpretation
+	-	IgM	+	-	• Acute hepatitis B, high infectivity
+	-	IgG	+	-	• Chronic hepatitis B, high infectivity ^o
+		IgG	-	+	• Late acute or chronic hepatitis B, low infectivity ^o • HBeAg-negative (precore-mutant) hepatitis B (chronic or rarely acute)

272. A patient of disseminated malignancy comes to the palliative care clinic with nausea, vomiting and altered sensorium. Hypercalcemia is detected on investigations. What will be the first line of management?

a) Intravenous steroids

b) Thiazides

c) Intravenous fluids

d) Intravenous bisphosphonates

Correct Answer - C

Ans: C. Intravenous fluids

(Ref: Harrison 19/e p314; 18/e p361)

Management of Significant, Symptomatic Hypercalcemia:

Initial therapy:

- Volume expansion (hypercalcemia leads to dehydration) with 4-6 L of IV saline over first 24 h, keeping in mind that underlying comorbidities (e.g., congestive heart failure) may require use of loop diuretics to enhance Na⁺ & Ca⁺ excretion.
- Increased calcium mobilization from bone (in malignancy or severe hyperparathyroidism).
- Drugs that inhibit bone resorption should be considered.
- Zoledronic acid, pamidronate & ibandronate – In treatment of hypercalcemia of malignancy in adults.
- Onset of action is within 1-3 days, with normalization of serum calcium levels occurring in 60-90% of patients.

273. A 50 years old lady, who has a known diagnosis of bronchial asthma, presented to the AIIMS emergency with complaints of severe breathlessness, diaphoresis and wheezing. On examination, you find that the patient is conscious with a respiratory rate of 30 per minute, blood pressure of 96/64 mm Hg and a pulse rate of 144 per minute. An arterial blood gas analysis showed a pH of 7.2, pO₂ of 50 mm Hg and pCO₂, of 70 mm Hg. How will you manage the patient?

a) Ventilation with continuous positive airway pressure

b) Oxygen supplementation by nasal mask

c) Mechanical ventilation with controlled ventilation

d) Intubation

Correct Answer - A

Ans: A. Ventilation with continuous positive airway pressure
(Ref: Harrison 19/e p1731, 18/e p2200)

- The patient here has decreased and increased pO₂ as well as pCO₂.
- Hence the patient is type 2 respiratory failure, which can be seen in

bronchial asthma patients.

- Best management strategy - Assisted ventilation with CPAP (Non-invasive ventilation) rather than controlled mandator), ventilation.

Type II respiratory failure – Mains stay of therapy:

- Directed at reversing underlying cause(s) of ventilatory failure.
- Noninvasive positive-pressure ventilation with a tight-lining facial or nasal mask, with avoidance of endotracheal intuhation, often stabilizes these patients.
- Mainly in exacerbations of chronic obstructive pulmonary disease.
- Check for hemodynamic instability, inability to protect the airway, respiratory arrest.

274. A glass factory worker presented with complaints of numbness in hands and feet, generalized weakness and constipation. Radiograph showed linear lines on metaphyses of knee and wrist joints. How will you diagnose this patient?

a) Serum mercury levels

b) Vitamin D levels

c) RBCcholinesterase levels

d) Amino levulinic acid levels in urine

Correct Answer - D

Ans: D. Amino levulinic acid levels in urine

(Ref: Harrison 19/e p2689, 427e-2; Harper 30/e p329)

- High levels of lead can affect bone metabolism by combining with SH groups in enzymes such as ferrochelatase and ALA (delta-amino levulinic acid) dehydratase.
- Elevated levels of protoporphyrin are found in red blood cells, and elevated levels of ALA and of coproporphyrin are found in urine.

Lead Poisoning:

- Abdominal pain, irritability, lethargy, anorexia, anemia, Fanconi's syndrome, pyuria, azotemia in children with blood lead level (BPb) >80 i.g/ dL; may also see epiphyseal plate "lead lines" on long bone x-rays.

275. A second-year PG resident tells you to perform an ABG of a patient. All of the following are true about performing an ABG except:

a) Before performing the ABG, syringe should be loaded with 0.3 cc of heparin

b) Normal pH, HCO₃⁻ and PCO₂ levels may not indicate absence of an acid-base imbalance

c) A different site should be tried if modified Allen's test is negative

d) Radial artery is the preferred site

Correct Answer - A

Ans: A. Before performing the ABG, syringe should be loaded with 0.3 cc of heparin

(Ref: Harrison 18/e p364; <http://emedicine.medscape.com/article/1902703-overview>).

- Care should be taken when measuring blood gases to obtain the arterial blood sample without using excessive heparin.
- Heparin should be expelled from the syringe after loading as it may lead to false pCO₂ readings.

Precautions:

- Most syringes come pre-packaged & contain a small amount of heparin, to prevent coagulation.
- Other syringes may need to be heparinized, by drawing up a small amount of liquid heparin & squirting it out again to remove air bubbles.
- Once the sample is obtained, care is taken to eliminate visible gas

bubbles, as these bubbles can dissolve into the sample & cause inaccurate results.

276. On laboratory investigations in a patient. pH = 7.3, pCO₂ = 35 mm Hg. What is the likely acid base imbalance?

a) Respiratory acidosis

b) Metabolic acidosis

c) Metabolic alkalosis

d) Respiratory alkalosis

Correct Answer - B

Ans: B. Metabolic acidosis

(Ref: Harrison 19/e p317, 18/e p365)

- In the question, pH is decreased (acidosis) & pCO₂ is decreased (Normal= 40-45 mm Hg).
- A decreased pCO₂ will try to increase pH, hence it must be secondary compensating mechanism.
- So, the primary mechanism causing the acid base imbalance must be a decrease in serum bicarbonate concentration i.e. metabolic acidosis.

277. A 50 years old smoker and hypertensive was diagnosed to have non-small cell lung carcinoma with brain metastases. He is on enalapril and hydrochlorothiazide for hypertension. On investigation, he had a serum Sodium 120 mg/dl, Urinary Sodium 110 mg/dl, Serum creatinine 0.8 mg/dL, Serum osmolarity 285 mOsm/L, Urinary osmolarity 351 mOsm/L, Urinary K⁺ 9 mg/dl, Blood sugar 112 mg/dL and BP of 150/90 mm Hg. Which of the following is the most probable cause for his hyponatremia?

a) Cerebral salt wasting

b) Diuretic induced

c) SIADH

d) Pseudohyponatremia

Correct Answer - C

Answer-C. SIADH

- Hyponatremia is a common electrolyte abnormality in cancer patients, and SIADH is the most common cause among patients with cancer.
- The term SIADH is applied to conditions with vasopressin excess.

- Vasopressin excess is termed inappropriate as this increase occurs despite decreased plasma osmolality.
- Increased vasopressin acts on renal tubules, resulting in increased absorption of water (increased total body water), concentrated urine and decreasing serum osmolality and hyponatremia.
- Edema does not occur despite increased total body water (due to unknown reasons)-Clinical euvolemia

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278. A young girl with the diagnosis of acute promyelocytic leukemia (APML) was treated medically. On day 3 of treatment, she developed tachypnea and fever. Chest X-ray shows bilateral pulmonary infiltrates. Which of the following drug should be given next?

a) Dexamethasone

b) Cytarabine

c) Dacarbazine

d) Doxorubicin

Correct Answer - D

Answer- D

- Tretinoin plus concurrent anthracycline-based (i.e., idarubicin or daunorubicin) chemotherapy appears to be among The most effective treatment for APL. leading to CR rates of 90-95%
- Arsenic trioxide has significant antileukemic activity and is being explored as part of initial treatment in clinical trials of APL. Arsenic trioxide increases the risk of APL differentiation syndrome & may prolong the QT interval.
- As of 2013 the standard of treatment for concurrent chemotherapy has become arsenic trioxide, which combined with ATRA is referred to ATRA-ATO.
- Before 2013 the standard of treatment was anthracycline (e.g.daunorubicin, doxorubicin, idarubicin or mitoxantrone)-based chemotherapy.

- Side effect of ATRA therapy as dyspnea, fever, weight gain, peripheral edema and is treated with dexamethasone.

279. A 60 years old patient who had myocardial infarction 2 weeks back, the lipid profile is done for a patient and reveals HDL 32 mg/dL, LDL 126 mg/dl, TG 276 mg/dL. Which of the following is preferred for this patient ?

a) Rosuvastatin + Fenofibrate

b) Fenofibrate alone

c) Rosuvastatin 10 mg

d) Atorvastatin 80 mg

Correct Answer - D

Answer- D. Atorvastatin 80 mg

When lipid-lowering agents are indicated, the treatment is started with HMG Co-A reductase inhibitors (statins). High intensity statin therapy should be started in the patients with presence of clinical atherosclerotic cardiovascular events (MI in this patient). In high intensity statin therapy, either atorvastatin (40-80 mg/day) or rosuvastatin (20-40 mg/day) should be given.

High Intensity Statin Therapy

- Lowers LDL cholesterol by approximately 50% .

Drugs used:

- Atorvastatin (40-80 mg)
- Rosuvastatin (20-40 mg)

280. All the following are seen in myasthenia gravis except:

a) Ptosis

b) Muscle fatigability

c) Absent DTRs

d) Normal pupillary reflex

Correct Answer - C

Answer- C. Absent DTRs

Deep tendon reflexes (DTRs) are present in patients of Myasthenia gravis.

"The limb weakness in myasthenia gravis (MG) is often proximal and may be asymmetric. Despite the muscle weakness, deep tendon reflexes are preserved.

281. Which of the following complications of stroke need not to be treated?

a) Fever

b) Spasticity

c) Dysphagia

d) Numbness

Correct Answer - B

Answer- B. Spasticity

Spasticity is seen in 20% of hemiplegic patients. Spasticity per se does not produce weakness and other aspects of motor control

Overzealous treatment affects the normal ambulation of patients.

Hence, treating spasticity, as a rule is not always preferred, treating it is a double-edged sword. Spasticity as a consequence of a stroke may have a certain beneficiary compensatory aspect.

282. A 40 years old female currently on a drug for psychiatric illness and hypertension presents with NYHA class III heart failure with dyspnea, pedal edema and K⁺ levels of 5.5 mEq/L and creatinine 2.5 mg%. Which of the following drug is best avoided?

a) Carvedilol

b) Enalapril

c) Spironolactone

d) Digoxin

Correct Answer - C

Answer- C. Spironolactone

In this case patient is having heartfailure with hyperkalemia and renal dysfunction with psychiatric illness. Spironolactone and enalapril, both causes hyperkalemia hut spironolactone csuses CNS depression also. Digoxin causes hypokalemia In this patient, spironolactone should be avoided.

Mechanism of Action

- Pharmacologic antagonist of aldosterone in collecting tubules
- Weak antagonism of androgen receptors
- Weak inhibitor of testosterone synthesis

283. A 20 years old female came with complaints of headache, vomiting and decrease in movement of right leg. In the past, she had episodes of violent and aggressive behaviour and abdominal pain. Which of the following is the most probable diagnosis?

a) Conversion disorder

b) Mitochondria disorder

c) Acute inflammatory demyelinating, paralysis

d) Acute intermittent porphyria

Correct Answer - D

Answer- D. Acute intermittent porphyria

Periodic abdominal pain (GI symptoms), peripheral neuropathy, headache (neurological symptoms) and psychiatric disorders (aggressive behavior) is highly suggestive of acute intermittent porphyria.

- Asymptomatic in majority of patients prior to puberty
- MC symptom: Abdominal pain
- Ileus, abdominal distention & decreased bowel sounds are common.
- Nausea; vomiting; constipation; tachycardia; hypertension; mental symptoms; pain in limbs, head, neck, or chest; muscle weakness; sensory loss; dysuria; and urinary retention are characteristic.
- Tachycardia, hypertension, restlessness, tremors & excess sweating are due to sympathetic overactivity.
- Peripheral neuropathy is due to axonal degeneration and primarily

affects motor neurons.

- Motor neuropathy affects the proximal muscles initially, more often in the shoulders & arms.
- Mental symptoms: Anxiety, insomnia, depression, disorientation, hallucinations, paranoia & seizures

284. The definition of pyrexia of unknown origin includes all except:

a) Diagnosis requires fever persisting for 3 weeks

b) Fever undiagnosed after 1 week of in-patient workup

c) Absence of immunological compromise

d) Temperature of 38.3°C or more

Correct Answer - B

Answer- B. Fever undiagnosed after 1 week of in-patient workup

According to new definition of fever of unknown origin, fever undiagnosed after 1 week of in-patient work up is not included.

285. A female patient has TSH elevated above normal and subnormal free T4. What is the likely diagnosis?

a) Primary hypothyroidism

b) Secondary hypothyroidism

c) Hyperthyroidism

d) Subclinical hypothyroidism

Correct Answer - A

Answer- A. Primary hypothyroidism

Elevated TSH with decreased T3/T4 in the patient is suggestive of primary hypothyroidism"

286. A 23 years old boy, a badminton player, sustained injury of left ankle. He was immobilized for 3 months, the cast was removed and patient was able to walk normally. Later he complained of pain and swelling in the left calf, left ankle and foot. His mother massaged him for 30 minutes. After a while he developed acute onset of breathlessness and was brought to emergency and died. Most likely cause of death is:

a) Pulmonary thromboembolism

b) Congestive cardiac failure

c) Massive stroke

d) Hypovolemic shock

Correct Answer - A

Answer- A. Pulmonary thromboembolism

History of immobilization for long duration suggests a probably subclinical deep venous thrombosis that had developed in the patient. On massaging, the thrombus of DVT got dislodged in the pulmonary circulation, causing pulmonary thromboembolism and death.

287. CURB-65 score includes all except:

a) Age > 65 years

b) Confusion and elevated blood urea nitrogen > 7 mmol/L

c) Respiratory rate > 30/min

d) Systolic BP < 100 mm Hg and Diastolic BP < 60 mill Hg

Correct Answer - D

Answer- D. Systolic BP < 100 mm Hg and Diastolic BP < 60 mill Hg

Pneumonia Severity Index (PSI) and CURB-65 criteria are used in patients of community-acquired pneumonia to decide severity of illness and which patients merit in-patient/ICU care. Systolic BP of <90 mm Hg (not < 100 mm Hg) is a part of the CURB65 criteria.

288. A 40 years old patient came with complaints of spikes of fever and difficulty in breathing. Transesophageal ECHO found out the vegetations in the heart. The culture was positive for Burkholderia cepacia. Drug of choice for Burkholderia cepacia pneumonia is:

a) Aminoglycoside and colistin

b) Carbapenems with 3rd generation cephalosporins

c) Tigecycline and cefipime

d) Cotrimoxazole with 3rd generation cephalosporins

Correct Answer - D

Answer- D. Cotrimoxazole with 3rd generation cephalosporins

Drug of choice for B. cepacia is TMP-SMX and alternative agents are ceftazidime, chloramphenicol

B. cepacia is the cause of a rapidly fatal syndrome of respiratory distress & septicemia ('cepacia syndrome') in cystic fibrosis Patients.

- Predisposing factors: cystic fibrosis & chronic granulomatous disease
- B. cepacia inhabits moist environments and is found in rhizosphere.
- possesses multiple virulence factors & colonizing factors capable of binding to lung mucus (predilection of B. cepacia for the lungs in cystic fibrosis).

Treatment:

- DOC for B. cepacia: TMP-SMX
- Alternative agents: Meropenem & doxycycline



289. All of the following clinical features are seen in Zika fever except:

a) Guillain-Barre syndrome

b) Petechial rash

c) Fever with arthralgia

d) Petechial rash

Correct Answer - B

Answer- B. Petechial rash

"Zika virus is an emerging pathogen that is transmitted among nonhuman primates and humans by Aedes mosquitoes.

Zika virus infection is characterized by influenza-like clinical signs, including fever, headaches, and malaise. A maculopapular rash, conjunctivitis, myalgia, and arthralgia usually accompany or follow those manifestations."

290. Hand to knee gait in polio is due to involvement of which muscle?

a) Gastrocnemius

b) Gluteus medius

c) Quadriceps

d) Hamstring

Correct Answer - C

Answer-C. Quadriceps

Deformity at hip: Flexion, abduction & external rotation

- Deformity at knee: Triple deformity of flexion, posterior subluxation & external rotation
- Foot: Equinovarus is most deformity followed by equinovalgus, Calcaneovalgus, calcaneovarus
- Upper limb: Shoulder and elbow muscles

291. A 50 years old male presented with frontal bossing, enlarged nasal bone, enlarged jaw and spade like fingers. Which of the following test will you do for diagnosis?

a) IGF1

b) ACTH

c) TSH

d) Serum cortisol

Correct Answer - A

Answer- A. IGF1

An IGF-I level provides a useful laboratory screening measure when clinical features raise the possibility of acromegaly.

Acromegaly-

Diagnosis:

- Screening investigation of choice in acromegaly: IGF-I
- Confirmatory & Gold standard: Oral Glucose Tolerance tests

292. A patient presents with ascending muscle weakness for 2 days. On examination, the limb is flaccid. What investigation should be done first?

a) Serum potassium

b) Serum creatinine

c) Serum magnesium

d) Serum calcium

Correct Answer - A

Answer- A. Serum potassium

Hypokalemia can cause flaccid ascending paralysis, which is a differential diagnosis for GBS. It can also cause periodic paralysis. Hypocalcemia and hypomagnesemia usually cause tetany and hypercalcemia won't cause ascending paralysis.

A low serum potassium level during an attack, excluding secondary causes, establishes the diagnosis of Hypokalemic Periodic Paralysis.

293. Window period for thrombolysis in a stroke patient is:

a) 1.5 hours

b) 2.5 hours

c) 3.5 hours

d) 4.5 hours

Correct Answer - D

Answer- D. 4.5 hours

"Intravenous thrombolysis is usually practiced within the window period of 4.5 hours.

294. A patient had a femur fracture for which internal fixation was done. Two days later, the patient developed sudden onset shortness of breath with low-grade fever. What is the likely cause?

a) Pneumothorax

b) Fat embolism

c) Pleural effusion

d) Congestive heart failure

Correct Answer - B

Answer- B. Fat embolism

"Fat embolism is a common phenomenon following limb fractures. Circulating fat globules larger than 10 μ m in diameter occur in most adults after closed fractures of long bones and histological traces of fat can be found in the lungs and other internal organs.

295. A 22-year-old man presents with diarrhea and intolerance to dairy products, on investigation he was found to have lactase deficiency. Agent least likely to cause lactose intolerance among these is?

a) Condensed MILK

b) Skimmed Milk

c) Yoghurt

d) Ice cream

Correct Answer - D
Ans: D. Ice cream

296. A known 60-year-old male Diabetic and hypertensive patient was found unconscious in the morning. On examination pulse- 120, bp- 180/100 and there was positive extensor plantar. What is next step to be done?

a) Order CT scan

b) Immediately reduces bp with antihypertensives

c) Give I/v mannitol

d) Check blood glucose

Correct Answer - D

Ans: D. Check blood glucose

- Quick assessment of Blood sugar should be done to rule out hypo or hyperglycemia is needed.
- In hypoglycemic coma, the eyeball tension is normal, there is profuse sweating and the plantar responses are extensor always either normal or subnormal in uncomplicated cases of either condition.
- It is well to remember that although a comatose patient is a known diabetic, the diagnosis is not always one of 'hyper- or hypo-glycaemia.

297. 40-year male patient who was a known smoker presents in AIIMS OPD with fever, fatigue, jaundice, yellow colored urine with clay colored stools. For the past few days he had developed aversion to cigarette smoking. On examination scleral icterus was present. LFT are:

Total Bill	18.5
Direct Bill	7.5
SGOT	723
SGPT	812

What investigations will you send for ruling out acute viral hepatitis?

a) HBsAg, IgM antiHBC, AntiHCV AntiHEV

b) AntiHAV, HBsAg, IgM antiHBc, AntiHCV

c) HBsAg, IgM antiHBC, AntiHDV AntiHCV AntiHEV

d) AntiHAV IgMantiHBC, AntiHCV, AntiHEV.

Correct Answer - B

Ans: B. AntiHAV, HBsAg, IgM antiHBc, AntiHCV

• Ref: Harrison, 18th ed., pg. 328, 2549-2552, 2550t, 2551t

HB-sAg	IgM Anti-HAV	IgM Anti-HBc	Anti-Diagnostic HCV Interpretation
+		+	Acute hepatitis B
			Chronic hepatitis

			B
+	+		Acute hepatitis A superimposed on chronic hepatitis B
+	+	+	Acute hepatitis A and B
—	+		Acute hepatitis A
—	+	+	Acute hepatitis A and B (HBsAg below detection threshold)
		+	Acute hepatitis B (HBsAg below detection threshold)
			Acute hepatitis C

298. A Patient is having Ph- 7.12, HCO₃⁻- 28 and PCO₂- 50mmhg. What is the acid base disorder in this patient?

a) Metabolic acidosis with respiratory compensation

b) Metabolic alkalosis with respiratory compensation

c) Respiratory acidosis with renal compensation

d) Respiratory alkalosis with renal compensation

Correct Answer - C

Ans: C. Respiratory acidosis with renal compensation

- pH-7.12 so its acidosis.
- PCO₂ is 50 mmHg (normal range 35-45 mmHg) which is higher than the normal s/o respiratory acidosis.
- HCO₃⁻ is 28 mmol/L (18-24 mmol/L) which is higher than the normal range s/o metabolic compensated alkalosis.

299. A Female patient was brought to the ER with altered sensorium. On examination BP was 88/67mm with a pulse of 60/min. Rectal temperature was 34 Celsius. There was associated history of constipation, dry skin and menorrhagia. What is the diagnosis?

a) Myxedema Coma

b) Septic Shock

c) Hypothermia

d) Cardiogenic Shock

Correct Answer - A

Ans: A. Myxedema Coma

Ref: Harrison, 18th ed., pg. 2922.

- Myxedema coma is a state of decompensated hypothyroidism.
- A person may have lab values identical to a "normal" hypothyroid state, but a stressful event (such as an infection, myocardial infarction or stroke) precipitates the myxedema coma state, usually in the elderly.
- Primary symptoms of myxedema coma are altered mental status and low body temperature.
- Low blood sugar, low blood pressure, hyponatremia, hypercapnia, hypoxia, slowed heart rate, and hypoventilation may also occur.

300. An old lady developed intractable vomiting for 7 days with loss of fluid in stools, decrease food intake and developed altered sensorium. She is brought to the hospital, where fluid loss is corrected with rapid fluids and electrolyte correction is given for hyponatremia. During the treatment, the patient started having quadriplegia and mutism. What is the diagnosis?

a) A rare complication of Rapid and aggressive sodium correction

b) Common complication of Hypernatremia

c) Brain stem infarcts

d) None of the above

Correct Answer - A

Ans: A. A rare complication of Rapid and aggressive sodium correction

Ref Harrison, 18't' ed., pg. 347, 2259, 2260J

- Central pontine myelinolysis (CPM) or osmotic demyelination syndrome (ODS) is a neurological disorder caused by severe damage of the myelin sheath of nerve cells in the area of the brainstem termed the pons, predominately of iatrogenic, treatment-induced cause Rapid and aggressive sodium correction.
- It is characterized by acute paralysis, dysphagia (difficulty swallowing), and dysarthria (difficulty speaking), and other

neurological symptoms.

- Na correction to be done in a slow manner.

301. A healthy middle-aged man was arguing with his brother and got emotionally upset due to the arguments with his brother, he suddenly developed chest pain and collapsed. When brought to the hospital' he was declared dead. What is the diagnosis?

a) Takotsubo cardiomyopathy

b) Dilated cardiomyopathy

c) Arrhythmogenic right ventricle dysplasia

d) Chronic ischemic cardiomyopathy

Correct Answer - A

Ans: A. Takotsubo cardiomyopathy

Ref Harrison, 18't' ed., pg, 1964

* Takotsubo cardiomyopathy, also known as stress cardiomyopathy, is a type of non-ischemic cardiomyopathy in which there is a sudden temporary weakening of the muscular portion of the heart.

* This weakening may be triggered by emotional stress, such as the death of a loved one, a break-up, rejection from a partner or constant anxiety.

- "Broken heart syndrome".

* Stress cardiomyopathy is now a well-recognized cause of acute heart failure, lethal ventricular arrhythmias, and ventricular rupture.

302. A patient presented with headache and fever for 7 days. While doing a lumbar puncture, it was noticed that the opening CSF pressure increased on jugular vein compression and became normal on relieving the pressure on jugular vein. What is the interpretation of this?

a) Subdural blockage

b) Subarachnoid blockage

c) Arachnoid villi blockage

d) Patent subarachnoid space

Correct Answer - D

Ans: D. Patent subarachnoid space

Ref: Text book of neurology (By Navneet), pg, 605

* The narrowed [spinal] channel impedes movement of fluid with an increase in pressure above the compression site.

* The increment in pressure above the obstruction can be demonstrated by compression of the neck which produces an increase in venous blood in the cranial cavity, with concomitant reduction in space for the cerebrospinal fluid.

* The increased fluid pressure immediately transmitted throughout the system normally can be demonstrated with a manometer attached to a lumbar puncture needle.

* In lesions of the cord the anometric change is greatly retarded.
- Referred as Queckenstedt's maneuver.

* Rise in opening pressure is suggestive of patent spinal canal.



303. causes of thyroid storm

a) ineffective pre-operative hormonal control

b) manhandling of the thyroid gland during surgery

c) parathyroid tail left after surgery

d) Poor Preoperative preparation of the patient

Correct Answer - D

- **Answer- D. Poor Preoperative preparation of the patient**
- This is a rare but life-threatening complication of thyrotoxicosis.
- The most prominent signs are fever, agitation, delirium, tachycardia or atrial fibrillation and, in the older patient, cardiac failure.
- Thyrotoxic crisis is a medical emergency and has a mortality of 10% despite early recognition and treatment.
- It is most commonly precipitated by an infection in a patient with previously unrecognized or inadequately treated thyrotoxicosis.
- It may also develop in known thyrotoxicosis shortly after thyroidectomy in an ill-prepared patient or within a few days of ¹³¹I therapy, when acute radiation damage may lead to a transient rise in serum thyroid hormone levels.
- Patients should be rehydrated and given propranolol, either orally (80 mg 4 times daily) or intravenously (1–5 mg 4 times daily). Sodium iodate (500 mg per day orally) will restore serum T3 levels to normal in 48–72 hours.
- This is a radiographic contrast medium that not only inhibits the release of thyroid hormones but also reduces the conversion of T4 to T3 and is, therefore, more effective than potassium iodide or Lugol's solution.

**304. If the cycle starts with ' a ' wave of jvp .
Arrange the following in order-**

a) R wave

b) T wave

c) 1st heart sound and Rapid ejection phase

d) All

Correct Answer - D

Answer- D. All

The "a" wave is approximately synchronous with the first heart sound (S1) and just precedes the carotid upstroke.

Shortly after the a-wave there is a second peak , the c-wave. The c-wave immediately follows the r wave of the ECG waveform.

The v-wave corresponds to the end of the t wave in the ECG waveform.

305. Which of the following doesn't have any effect on pancreatic secretion?

a) Cck

b) Gastrin

c) Secretin

d) Gastric inhibitory polypeptide

Correct Answer - D

Answer- D. Gastric inhibitory polypeptide

CCK- As chyme floods into the small intestine, cholecystokinin is released into blood and binds to receptors on pancreatic acinar cells, ordering them to secrete large quantities of digestive enzymes.

Secretin-

- The predominant effect of secretin on the pancreas is to stimulate duct cells to secrete water and bicarbonate.
- Gastrin- Stimulate acid secretion by the parietal cell, gastrin stimulates pancreatic acinar cells to secrete digestive enzymes.

306. A young man was on high protein diet. After 3 days he developed weakness. Blood investigation revealed hypoglycemia. Hypoglycemia is due to inhibition of which of the following enzymes

a) Glucose 6 phosphatase

b) Glycogen phosphorylase

c) Phosphoglucomutase

d) PEP carboxylase

Correct Answer - D

Answer- D. PEP carboxylase

307. What is the most common tumor of mediastinum?

a) Neurogenic

b) Thymoma

c) Lymphoma

d) Metastatic tumor

Correct Answer - A

Answer- A. Neurogenic

the most common mediastinal masses are neurogenic tumors (23%), thymomas (21%), lymphomas (13%) and germ cell tumors (12%). Mediastinal masses are most frequently located in the anterosuperior mediastinum (54%), with the posterior (26%) and middle mediastinum (20%) being less frequently involved

308. In which of the following tumor MRI is better than CT Scan..

a) Brochogenic Carcinoma

b) SCC of lung

c) Mesothelioma

d) Pancost tumor

Correct Answer - D

Answer- D. Pancost tumor

MRI: An [MRI](#) is generally more accurate than a [CT scan](#) at uncovering the extent to which a tumor has invaded other structures

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For any queries inbox @murtzakuchay

309. Which of the following has intracellular receptor -

a) Glucagon

b) Insulin

c) Epinephrine

d) Thyroxine

Correct Answer - D

Answer- D. Thyroxine

Classic hormones that use intracellular receptors include thyroid and steroid hormones.

310. A patient presents to the ER after a RTA with multiple rib injuries. He is conscious, speaking single words. RR = 40/min, BP= 90/40 mmHg. What is the next immediate step in management?

a) Intubate the patient

b) Urgent fluid infusion

c) Chest X ray

d) Needle insertion in 2nd ICS

Correct Answer - D

Answer- D. Needle insertion in 2nd ICS

This is a case of tension pneumothorax. Although the new ATLS update is 5th intercostal space in mid maxillary line, but in this question we will go with a time tested method of needle in 2nd intercostal space.

311. A patient with Hb 7 was to be transfused with 2 packs of blood. The first pack was transfused in 2 hours after which vitals were stable and then the transfusion of the next pack was started . But suddenly the patient develops breathlessness and hypertension. What can be the cause of this sudden reaction?

a) transfusion related circulatory overload (TACO)

b) allergic reaction to transfused blood

c) transfusion related acute lung injury (TRALI)

d) transfusion related acute renal failure

Correct Answer - C

Answer- C. transfusion related acute lung injury (TRALI)

Transfusion-related acute lung injury (TRALI) is a serious blood transfusion complication characterized by the acute onset of non-cardiogenic pulmonary edema following transfusion of blood products.

Hypotension, and fever that develop within 6 hours after transfusion and usually resolve with supportive care within 48 to 96 hours.

Although hypotension is considered one of the important signs in diagnosing TRALI, hypertension can occur in some cases.

312. The severity of mitral stenosis can be judged by-

a) Intensity of murmur

b) Duration of murmur

c) Left ventricular S3

d) Loud S1

Correct Answer - B

Answer- B. Duration of murmur

Duration depends on severity of MS.

In severe MS, the mid diastolic murmur is long and merges with the presystolic murmur to produce holodiastolic murmur..

313. Ciliocytophthoria caused by

a) Kartagener syndrome

b) Fungal infection

c) Viral infection

d) Bacterial infection

Correct Answer - C

Answer- C. Viral infection

It is well known that acute inflammation of the upper airways are caused mainly by viruses, even though after the viral infection a bacterial overlapped infection follows, partly favored by the cytopathic effect of the virus itself on the mucosa.

314. A 56yr old underwent transsphenoidal hypophysectomy for pituitary tumour. Now he has low ACTH, TSH, FSH, LH. Which of the hormone will not be given to the patient?

a) Glucocorticoids

b) Mineralocorticoids

c) Levothyroxine

d) Estradiol

Correct Answer - B

Answer- B. Mineralocorticoids

This patient does not need supplementation with mineralocorticoids. It is due to the fact that post-hypophysectomy, the basal levels of mineralocorticoids (principally aldosterone) remain normal as the renin-angiotensin-aldosterone feedback loop remains intact.

315. After Dengue hemorrhagic shock, what is the criteria for the patient to be discharged from the hospital?

a) After return of appetite

b) After urine output more than 200ml

c) 24hrs after recovery from shock

d) Fever controlled by paracetamol for >24hrs

Correct Answer - A

Answer- A. After return of appetite

Patients who are resuscitated from shock rapidly recover. Patients with dengue hemorrhagic fever or dengue shock syndrome may be discharged from the hospital when they meet the following criteria:

- * Afebrile for 24 hours without antipyretics
- * Good appetite, clinically improved condition
- * Adequate urine output
- * Stable hematocrit level
- * At least 48 hours since recovery from shock
- * No respiratory distress
- * Platelet count greater than 50,000 cells/ μ L

316. The most common cause of Addison's disease is

a) Autoimmune adrenalitis

b) Meningococcal septicemia

c) Malignancy

d) Tuberculosis

Correct Answer - A

Answer- A. Autoimmune adrenalitis

Most common cause (60%-70%) of primary adrenocortical insufficiency (Addison's Diseases) is autoimmune adrenalitis.

Other common cause are.

* Tuberculosis -*Most common cause of Addison's disease in India .

* AIDS

* Metastatic cancers

317. Patient with PPF transfusion complaint of breathing difficulty, tachycardic, tachypnea, Had Batwing sign present in X-ray. What will be the possible reason?

a) Transfusion related lung injury

b) Due to overload of PPF

c) Acute renal tubular acidosis

d) Hemoglobinuria

Correct Answer - B

Answer- B. Due to overload of PPF

Transfusion associated circulatory overload (TACO) is an established, but grossly under diagnosed and underreported complication of blood transfusion.

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318. Incorrect regarding ABG sample-

- a) Normal pH cant rule out acid base disorder
- b) Choose another site if Allen test is abnormal
- c) Add 0.5 ml of heparin to the syringe before taking blood
- d) Radial artery is preferred site

Correct Answer - C

Answer- C. Add 0.5 ml of heparin to the syringe before taking blood

The radial artery is most easily accessible site.

The ALLEN test is then repeated in case of thrombosis, but this time the radial artery is released while the ulnar artery remains compressed

Identification of respiratory, metabolic, and mixed acid-base disorders, with or without physiologic compensation, by means of pH ($[H^+]$) and CO_2 levels (partial pressure of CO_2)

319. Anthracis causes which pulmonary manifestations-

- a) Atypical pneumonia
- b) Hemorrhagic mediastinitis
- c) Lung abscess
- d) Bronchopulmonary pneumonia

Correct Answer - B

Answer- B. Hemorrhagic mediastinitis

A low-grade fever and a nonproductive cough.

Substernal discomfort early in the illness.

Inhalational anthrax progresses rapidly, causing hemorrhagic mediastinitis

High fever

Severe shortness of breath

Tachypnea

Cyanosis

Profuse diaphoresis

Hematemesis

320. Pulmonary-renal syndromes include-

a) Goodpasture

b) Leptospirosis

c) Hantavirus and Wegner's

d) All

Correct Answer - D

Answer-D. All

Pulmonary-renal syndromes are most commonly caused by an underlying autoimmune disease.

PRS is most commonly due to ANCA-associated vasculitides (e.g., granulomatosis with polyangiitis) or due to anti-basement membrane diseases (e.g., Goodpasture's syndrome).

Other etiologies include toxic injury such as paraquat poisoning, infection with hantavirus, leptospirosis, or legionella, or vascular, as seen in nephrotic syndrome when a renal vein thrombosis embolism to the lungs.

321. Renal feed for CKD patients-

a) Low calorie low volume

b) Low calorie high volume

c) High calorie low volume

d) High calorie high volume

Correct Answer - C

Answer- C. High calorie low volume

Limiting fluids, eating a low-protein diet, limiting salt, potassium, phosphorous, and other electrolytes, and getting enough calories if you are losing weight.

322. What is the effective management of a dengue patient with warning signs without shock and haemorrhage-

a) Steroids

b) Platelet transfusion

c) IV fluids

d) Antiviral

Correct Answer - C

Answer- C. IV fluids

Supportive care with analgesics, fluid replacement, and bed rest is usually sufficient.

323. Patient presented with PSVT after carotid management, BP is 70/30 mm/H & vagal maneuver failed and refractory to adenosine given. what will be the next step-

a) Synchronised Cardioversion

b) Repeated adenosine

c) Inj. Amiodarone

d) DC shock

Correct Answer - A

Answer- A. Synchronised Cardioversion

The next best step of management in this patient is synchronized cardioversion.

The ECG is suggestive of paroxysmal supraventricular tachycardia (PSVT) at a rate of 150/min. In this case, carotid massage and IV adenosine have failed to control PSVT and the patient continues to have hemodynamic instability (B.P. - 60/30 mmHg). In this condition, synchronized direct current cardioversion (and not just DC shock) should be initiated with the starting dose of 50-100J.

324. Which is correct for JME?

a) Polygenic inheritance

b) Avoid valproate

c) Lamotrigine decreases myoclonus

d) BZD alone can treat myoclonic jerks

Correct Answer - A:C

Answer- A & C

Juvenile myoclonic epilepsy (JME) is an idiopathic generalized epileptic syndrome characterized by myoclonic jerks, generalized tonic-clonic seizures (GTCSs).

Valproic acid has been considered the treatment of choice for JME. lamotrigine, topiramate, levetiracetam, and zonisamide is also used.

325. True on SSPE (Subacute Sclerosing Pan Encephalitis)-

a) Seizures

b) MCC is herpes

c) Periodic sharp waves may be seen

d) All are true

Correct Answer - A:C

Answer- A & C

SSPE is a slowly progressive disease characterized by seizures and progressive deterioration of cognitive and motor functions, with death occurring 5–15 years after measles virus infection.

326. A person presents with following parameters PCO₃- 30 mm of Hg, P0₂- 105 mm of Hg, pH-7.45 is having partially compensated

a) Metabolic acidosis

b) Metabolic alkalosis

c) Respiratory acidosis

d) Respiratory alkalosis

Correct Answer - D

Answer- D. Respiratory alkalosis

In the question, pH is 7.45 and PCO₂ is 30 mm Hg. Overall change is slightly alkaline. Respiratory change is also alkaline. So the diagnosis is respiratory alkalosis

Acid Base Disorders

pH < 7.35 is acidosis; pH > 7.45 is alkalosis

1st change in HCO₃ is termed as Metabolic (Normal HCO₃ = 22-30 mEq/l)

1st change in CO₂ is termed as Respiratory (Normal CO₂ = 35-45 mEq/l)

327. A 25 year old lady on treatment for rheumatoid arthritis has following lab findings: Hb-9gm/dl, MCV- 55fl, serum iron-30microgm/dl, ferritin 200 ng/ml, TIBC- 298 micrograms/dl. What is the most probable diagnosis?

a) Thalassemia minor

b) Thalassemia major

c) Anemia of chronic disease

d) Iron deficiency anemia

Correct Answer - C

Answer C. Anemia of chronic disease

E articular manifestations of Rheumatoid Arthritis:

- * Subcutaneous nodules
- * Sjogren's syndrome
- * Pericarditis, Mitral regurgitation
- * Pleuritis, Interstitial Lung disease
- * Vasculitis
- * Felty's syndrome in the late stages of RA ; most common hematologic abnormality in RA- normochromic normocytic anemia.
- * Lymphoma

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