ACOI Board Review Course 2015
Review Questions

RHEUMATOLOGY QUESTIONS

1.) Current understanding of Rheumatoid arthritis pathogenesis include:

a.) host with MHC II alleles HLA-DR4
b.) up-regulation of pro-inflammatory cytokines such as IL-1 and TNF-alfa
c.) B-cell activation
d.) activation of RANK-ligand on osteoclasts
e.) all the above

Answer: e.

2.) The diagnosis of Rheumatoid arthritis depends on:

a.) the presence of IgM rheumatoid factor
b.) the presence of anti-CCP Ab
c.) the clinical presentation of the patient
d.) a and b
e.) elevated sedimentation rate

Answer: c.

3.) Treatment of patients with Rheumatoid arthritis can best be explained as:

a.) a pyramid approach beginning with NSAIDs and bedrest and progressing to DMARDs only after the disease has failed to remit after at least 12 months.
b.) High dose prednisone accompanied by intra-articular steroid injections.
c.) Placing all patients on biological response modulators at the onset of disease.
d.) Identification of patients likely to develop progressive and crippling disease then use of our best therapies up front while following objective measures of disease activity.
e.) a and b

Answer: d.

4.) The ANCA associated vasculitidies include:

a.) Wegener’s Granulomatous and Microscopic polyangiitis
b.) Takayasu’s arteritis and GCA
c.) Polyarterities nodosa
d.) Leukocytoclastic vasculitis
e.) C and D
Answer: a.

5.) pANCA’s may be:

   a.) drug induced
   b.) false positive in the face of positive ANA’s
   c.) associated with MPA
   d.) caused by antibodies to myeloperoxidase
   e.) all the above

Answer: e.

6.) A 68 y/o WF presents with history of fever, severe fatigue, anorexia and weight loss. She c/o new onset of temporal headache which has been constant. She has temporal artery tenderness on exam. Her Hb = 10. Her sed-rate is 110. Your next response is to:

   a.) Obtain a temporal artery biopsy
   b.) Place patient on low dose prednisone and obtain TA biopsy
   c.) Place patient on prednisone at 1-2 mg/kg/day and obtain TA biopsy
   d.) Consult a hematologist and a rheumotologist
   e.) None of the above

Answer: c.

7.) The following meet the diagnostic criteria for Systemic Lupus Erythematosis:

   a.) Positive ANA, Iritis, 9 swollen joints, oral ulcers
   b.) Positive ANA, acute confusion, anemia of chronic disease, swollen knee
   c.) Positive ANA, aphthous ulcers, discoid rash, low complement
   d.) Positive ANA, swollen knee, Iron deficiency anemia, malar rash
   e.) Positive ANA, aphthous ulcer, chest pain, Raynaud’s phenomenon

Answer: c.

8.) Progressive systemic sclerosis:

   a.) Is a variant of morphea
   b.) Is associated with rapid progression of muscle wasting
   c.) Is caused by hepatitis C
   d.) Is associated with pulmonary fibrosis
   e.) Presents with Alzheimer’s like symptoms due to brain sclerosis after long standing optic scleritis

Answer: d.
9.) The idiopathic inflammatory myopathies:
   a.) Can be caused by Myophosphorylase deficiency (GSD type V)
   b.) Rarely cause permanent muscle loss
   c.) Can be a paraneoplastic syndrome
   d.) Are associated with psoriasis
   e.) Are diagnosed with a positive Electromyogram (EMG) and myeloperoxidase test

Answer: c.

10.) Osteoporosis:
   a.) Is a rare cause of back pain
   b.) Is treatable with calcium and vitamin D
   c.) Is caused by long term long distance running
   d.) Is a preventable cause of death
   e.) Is associated with obesity

Answer: d.

11.) The most common cause of Osteomyelitis is:
   a.) Gonorrhea
   b.) Tuberculosis
   c.) Staphylococcus
   d.) HIV
   e.) Trauma

Answer: c.

12.) Septic arthritis:
   a.) Is most common in the foot or ankle of diabetic patients
   b.) Can be diagnosed in almost all cases by a synovial fluid culture
   c.) Is associated with a negative synovial fluid culture and synovial WBC count of 57,000
   d.) Should be suspected in a ventilator dependant patient with documented sepsis and diffuse joint swelling
   e.) Is associated with monosodium urate in the synovial fluid

Answer: c.

13.) Lyme disease:
a.) Can be reliably diagnosed by persistent positive serology
b.) An individual with a positive lyme antibody titer and continued generalized arhralgias after treatment should be presumed to have chronic Lyme Disease
c.) Should be suspected in any individual in Idaho, Wyoming, or Montana with a tick bite and a painful lesion
d.) Late or disseminated Lyme Disease can be diagnosed by blood culture of I. scapularis
e.) Can be diagnosed with confidence in an individual in an endemic area with erythema migrans

Answer: e.

14.) Acute gout:

a.) Is associated with calcium pyrophosphate crystals in joint fluid
b.) Is associated with negatively birefringent crystals in joint fluid
c.) Can be reliably diagnosed in a diabetic patient with a history of acute first MTP podagra
d.) Should be treated by starting a combination of colchicine and allopurinol
e.) Is associated with NTPPPHase deficiency

Answer: b.

15.) Which of the following increases the risk of acute gout?

a.) Low dose aspirin
b.) Ochronosis
c.) Estrogen
d.) Ibuprofen
e.) Naproxen

Answer: a.

16.) Seronegative spondyloarthropathies share all the following except:

a.) involvement of spinal joints including sacroileitis
b.) familial clustering
c.) occurrence of enthesitis
d.) presence of IgM rheumatoid factor
e.) association with HLA-B27

Answer: d.

17.) The Schober test is:
a.) a useful serological test for the diagnosis of Reiter’s
b.) a useful physical diagnostic test for lumbar ROM
c.) a useful physical diagnostic test for cervical ROM
d.) a useful radiographic tool for diagnosis of AS
e.) none of the above

Answer: b.

18.) Keratoderma blennorrhagicum:

a.) May be seen in Reiter’s reactive arthritis
b.) Occurs on the soles of the feet
c.) May have the appearance of pustular psoriasis
d.) All the above
e.) None of the above

Answer: d.

INFECTIOUS DISEASES QUESTIONS

1.) An otherwise healthy 32 y.o. is seen in your office/ER soon after a cat bite. You decide to give an antibiotic. Which of the following is most likely to be ineffective?

a.) cephalexin (Keflex®)
b.) doxycycline
c.) ampicillin
d.) amoxicillin/clavulanate (Augmentin®)
e.) ceftriaxone

Answer: a.

2.) The day after your patient was in a fight after “having a few,” he presents to your office/ER with a swollen hand that he thinks was the result of hitting someone in the mouth. Which of the following is most likely to be ineffective

a.) amoxicillin/clavulanate
b.) clindamycin
c.) moxifloxacin
d.) amoxicillin

Answer: b.

4.) After diagnosing secondary syphilis (rash involving palms and soles of a traveling salesman), you should recommend all but the following:
a.) HIV testing  
b.) benzathine PCN 2.4 mill. Units I.M. x 1  
c.) benzathine PCN 2.4 mill. Units I.M. weekly x 3  
d.) azithromycin 1gm p.o. x 1  
e.) partner notification

Answer: c.

5.) Which of the following organisms is an unlikely cause of endocarditis?

a.) S. aureus  
b.) E. coli  
c.) S. bovis/gallolyticus  
d.) Enterococcus spp.  
e.) Cardiobacterium spp.

Answer: b.

6.) Which underlying cardiac condition does not warrant endocarditis prophylaxis?

a.) mitral valve prolapse  
b.) previous endocarditis  
c.) prosthetic valve  
d.) cardiac transplant w/ valvulopathy  
e.) unrepaired cyanotic congenital heart dx

Answer: a.

7.) Your patient with a recently placed prosthetic aortic valve is about to undergo dental extraction. She reports anaphylaxis to amoxicillin. Which of the following should be offered?

a.) Cephalexin 500 mg x 1 prior to procedure  
b.) Clindamycin 300 mg x 1 prior to, then 3 additional doses q 8 hrs following the procedure  
c.) Doxycycline 200mg x 1 prior to procedure  
d.) Clindamycin 600 mg x 1 prior to procedure  
e.) Ciprofloxacin 500 mg x 1 prior to procedure

Answer: d.

8.) Within a 2-3 day time period, multiple patients from an ECF are seen in your ER with severe N/V and non-bloody diarrhea. What is the most likely explanation?

a.) S. aureus food poisoning
b.) B. cereus food poisoning
c.) E. coli 0157 H7 food poisoning
d.) Shigella - foodborne or otherwise
e.) Norovirus - foodborne or otherwise

Answer: e.

8.) A colleague’s wife presents to your office, ill appearing, w/ severe abdominal pain and bloody diarrhea. Dietary hx is not helpful. What should NOT be offered?

a.) sympathy
b.) hydration
c.) empiric quinolones
d.) culture of a stool specimen

Answer: c.

9.) During the “window phase” of acute HIV infection, individuals:

a.) are most always quite ill
b.) commonly present w/ “opportunistic” infections
c.) should have CD4 and “viral loads” obtained
d.) are considered highly infectious
e.) need counseling and support

Answer: d.

10.) Suspecting acute Pneumocystis pneumonia, which is the most important study to immediately order?

a.) ABGs
b.) CD4 count
c.) Viral load
d.) Blood cultures
e.) Sputum for gm stain, culture, and special studies for pneumocystis

Answer: a.

11.) When is treatment for HIV contraindicated?

a.) concomitant drug abuse
b.) pregnancy
c.) concomitant active hepatitis B and or C
d.) CD4 count above 500
e.) pt unwilling and/or non-compliant

Answer: e.

12.) A 21yo male presents to urgent care with a 1 week h/o dry cough, malaise and low-grade fever. His roommate was sick with a similar illness 2 weeks ago. CXR demonstrates b/l hazy infiltrates. Your initial treatment should be:

a.) Doxycycline  
b.) Ceftriaxone IM  
c.) Amoxicillin/clavulanate  
d.) Dicloxacillin  
e.) Trimethoprim/sulfamethoxazole

Answer: a.

13.) A 62yo male with a h/o tobacco abuse and DM presents with a fever of 101.7F and productive cough. He was diagnosed with influenza A last week and completed a course of oseltamivir. You suspect a secondary bacterial pneumonia due to:

a.) Legionella pneumophilia  
b.) Mycoplasma pneumoniae  
c.) Staphylococcus aureus  
d.) Pseudomonas aeruginosa  
e.) Haemophilus influenza

Answer: c.

14.) A 36yo HIV+ patient on combivir/sustiva presents with a 2 day h/o fever, chills, and malaise. His CD4 = 545. Viral load <20 copies. Patient’s CXR shows a dense LLL infiltrate. You suspect pneumonia due to:

a.) Legionella pneumophilia  
b.) Mycobacterium avium complex  
c.) Pneumocystis carinii/jeroveci  
d.) Streptococcus pneumoniae  
e.) Staphylococcus aureus

Answer: d.

15.) A 64yo Hispanic man presented to the hospital with progressive SOB. CT of the chest demonstrated a large R sided pleural effusion. Thoracentesis was performed and demonstrated 76% mononuclear cells. You suspect a diagnosis of:

a.) Empyema necessitans  
b.) Mycobacterium tuberculosis
c.) Streptococcus pneumoniae

d.) Malignant effusion due to adenocarcinoma

e.) Hemothorax

Answer: b

16.) An ICU nurse presents to the employee health clinic to have her PPD read. There is 2mm of induration and 11mm of erythema. You tell her:

a.) She needs to seen an infectious disease specialist for 9 months of INH and vitamin B6
b.) She needs to go to the ER for a stat CXR to evaluate for active TB
c.) She will be referred to the health department for initiation of 4 drug therapy including INH, rifampin, ethambutol, and pyrazinamide
d.) She should receive a repeat PPD in 1 year
e.) She needs to wear an N95 respirator while seeing her patients

Answer: d.

17.) A 27yo male presents with headache, photophobia and nausea for 2 days PTA. He c/o “swollen glands” and fever to 100.1F. LP demonstrates 132 WBCs with 84% mononuclear cells. In addition to CSF cultures, you should consider testing patient for:

a.) Terminal compliment deficiency
b.) Mollaret’s syndrome
c.) HIV
d.) Immunoglobulin G subclass deficiency
e.) Lyme disease

Answer: c.

18.) An 8yo boy presents to the ER with headache, loss of sense of smell, poor appetite, and malaise. He was at a Boy Scout camp waterskiing this past weekend. In spite of intensive care, patient dies 72h later. You suspect infection due to:

a.) Nagleria fowleri
b.) Schistosoma mansoni
c.) Parvovirus B19
d.) Borrelia burgdorferi
e.) Disseminated histoplasmosis

Answer: a.
19.) A 75yo woman presents to the ER with a 103F fever, headache, neck pain, and rash 2wk after a vacation to California. Upon arrival to the ER, patient is having trouble standing. LP shows lymphocytic pleocytosis. The most likely diagnosis is:

a.) Herpes simplex meningoencephalitis  
b.) Hanta virus  
c.) Coccidioidomycosis meningitis  
d.) Cryptococcal meningitis  
e.) West Nile meningoencephalitis

Answer: e.

ALLERGY/IMMUNOLOGY QUESTIONS

1.) Your patient comes to you with a 2 week history of small painful red bumps on the left arm and hand. These last for several days, and leave a bruise as they heal. You suspect:

a.) Urticaria  
b.) Angioedema  
c.) Urticarial vasculitis  
d.) Contact dermatitis  
e.) Cellulitis

Answer: c.

2.) Mr. Smith, a 37 year old patient presents with intermittent swelling of the hands bilaterally. When it occurs, he has difficulty with his work as a mechanic. What is your best screening test?

a.) C1 Esterase  
b.) C1 Esterase inhibitor (Quantitative)  
c.) C1 Esterase inhibitor function  
d.) CH50  
e.) C3

Answer: e.

3.) Which of the following is MOST likely to be IgE mediated?

a.) Difficulty breathing after aspirin ingestion  
b.) Shortness of breath while in the dental chair with a latex dental dam in place  
c.) Diffuse erythema (red man) after vancomycin  
d.) Dry chapped, cracked hands after using latex gloves for weeks  
e.) Reaction to radiocontrast materials during an X-ray procedure
4.) Some materials can cause systemic reactions by the direct activation of mast cells, leading to the release of mast cell mediators without any influence of IgE. Which of the following is most likely to do so?

   a.) Opiates  
   b.) Penicillin  
   c.) Peanuts  
   d.) Aspirin  
   e.) Latex 

Answer: a.

5.) Ms. Jones, a 29 year old patient, has a history of recurrent sinus infections and bronchitis over the past three years. These infections seem to be getting worse, and closer together. You suspect a primary immunodeficiency. What test is most likely to provide a diagnosis?

   a.) Complement studies  
   b.) Flow cytometry to study her lymphocytes  
   c.) CBC  
   d.) Bone Marrow Biopsy  
   e.) Quantitative immunoglobulins 

Answer: e.

6.) You suspect your patient has poor function of his phagocytes. You order a nitroblue Tetrazolium (NBT) test. What color will normal phagocytes turn the NBT?

   a.) Yellow  
   b.) Blue  
   c.) Green  
   d.) Red  
   e.) White (colorless) 

Answer: b.

7.) What is the preferred treatment for selective IgA deficiency?

   a.) Bone marrow transplant  
   b.) Prolonged prophylactic antibiotics  
   c.) Immunoglobulin replacement (IVIG)  
   e.) Nothing
f.) Subcutaneous Immunoglobulin replacement

Answer: d.

8.) **FDA approved treatment for food allergies include:**
   a.) Subcutaneous immunotherapy
   b.) Sublingual immunotherapy
   c.) Oral immunotherapy
   d.) Daily small doses of the offending food
   e.) None of the above

Answer: e

9.) **What is the most common cause for poor asthma control?**
   a.) Poor technique
   b.) Poor compliance
   c.) Under treatment
   d.) Failure to appropriate recognize asthma severity

Answer: b

10.) **The cell type that is important in Immediate Hypersensitivity is?**
    a.) T helper 1 cell
    b.) T reg cell
    c.) T helper 2 cell
    d.) T 17 cell

Answer: c

**CARDIOLOGY QUESTIONS**

1.) **Pulsus parvus et tardus is suggestive of which one of the following conditions?**
   a.) Hypertrophic obstructive cardiomyopathy.
   b.) Aortic stenosis.
   c.) Mitral regurgitation.
   d.) Congestive heart failure.
   e.) Hypotension.

Answer: b.

2.) **Which of the following conditions can not be visualized by transthoracic echocardiography?**
a.) Left atrial myxoma.
b.) Pericardial effusion
c.) Mitral stenosis
d.) Tricuspid regurgitation
e.) Coronary artery stenosis

Answer: e.

3.) Intervention of which of the following risk factors definitely reduces the risk of coronary heart disease?

   a.) High serum triglyceride
   b.) High serum lipoprotein-a
   c.) High serum LDL-cholesterol
   d.) High serum homocysteine
   e.) High serum hs-CRP

Answer: c.

4.) Which of the following best explains the molecular-genetic basis for hypertrophic cardiomyopathy?

   a.) Mutations of Chromosome 14 (band q 1).
   b.) Increased levels of norepinephrine, angiotensin and platelet derived growth factor.
   c.) Mutations of actin and myosin light chains.
   d.) Mutation of myosin heavy chain ATPase domain.
   e.) Mutation of myosin due to poisons and toxins.

Answer: a.

5.) Which of the following does NOT describe hypertrophic cardiomyopathy?

   a.) Myocardial fiber disarray.
   b.) Loose intercellular myocardial connective tissue with fibrosis.
   c.) Abnormal intramural arteries.
   d.) Systolic anterior mitral valve motion.
   e.) Elevated diastolic ventricular pressures with early dip followed by an elevated plateau.

Answer: e.

6.) Which of the following agents is of most value in treatment of severe obstructive hypertrophic cardiomyopathy?
a.) Propranolol
b.) Verapamil
c.) Disopyramide
d.) Hydralazine
e.) Dobutamine

Answer: c.

7.) Which of the following ECG changes would be most typical of dilated cardiomyopathy?

a.) Preexcitation syndrome.
b.) Left bundle branch block.
c.) Short QT interval.
d.) Sinus arrhythmia.
e.) High voltage RS waves in lead V3.

Answer: b.

8.) A patient with dilated cardiomyopathy whose electrocardiogram shows Epsilon waves and experiences monomorphic ventricular tachycardia with QRS waves showing a left bundle branch block morphology is best diagnosed as which of the following?

a.) Brugada syndrome.
b.) Takotsubo cardiomyopathy.
c.) Arrhythmogenic right ventricular dysplasia.
d.) Amyloidosis.
e.) Ebstein’s Anomaly.

Answer: c.

9.) Cardiomyopathy manifested by elevated systemic and pulmonic venous pressures, thickened ventricular walls, atrial enlargement, AV valve regurgitation and high degree AV block would be which of the following types?

a.) Dilated cardiomyopathy.
b.) Arrhythmogenic right ventricular dysplasia.
c.) Takotsubo cardiomyopathy.
d.) Hypertrophic obstructive cardiomyopathy.
e.) Restrictive cardiomyopathy.

Answer: e.

10.) Which of the following findings cause increased left ventricular preload?
a.) High systemic blood pressure  
b.) Aortic valvular stenosis  
c.) Mitral valvular regurgitation  
d.) Mitral valvular stenosis  
e.) Pulmonary hypertension  

Answer: c.

11.) Left ventricular remodeling can be prevented by which one of the following therapies?

   a.) Thiazide diuretics  
   b.) Spironolactone  
   c.) Digoxin  
   d.) Angiotensin-converting enzyme inhibitors  
   e.) Vasodilators  

Answer: d.

12.) Which of the following causes increased left ventricular afterload?

   a.) Hypertrophic obstructive cardiomyopathy  
   b.) Left ventricular aneurysm  
   c.) Post-myocardial infarction remodeling  
   d.) Aortic valvular regurgitation  
   e.) Vasodilator medications  

Answer: a.

13.) For patients with significant CAD, which of the following has not been shown to improve survival and decreased coronary events?

   a.) Statin drugs  
   b.) Beta blockers  
   c.) ACE inhibitors  
   d.) Aspirin  
   e.) Vitamin E  

Answer: e.

14.) According to the ACC/AHA guidelines which of the following is a class I indication for coronary angiography?

   a.) A patient with new onset chest pain, no ST segment deviation but an elevated troponin T
b.) A patient with a new finding of an LV EF of 45% by echocardiography
c.) A patient with apical ischemia on exercise perfusion study at 11 METS
d.) A patient with CRP in the upper quintile not associated with cardiac symptoms

Answer: a.

15.) Which of the following is a contraindication (class III indication) for PCI in the setting of unstable angina/NSTEMI?

   a.) Three-vessel disease and diabetes
   b.) Significant proximal LAD disease and no contraindication for CABG
   c.) Significant left main CAD and no contraindication for CABG
   d.) Cardiogenic shock secondary to proximal LAD occlusion

Answer: c.

16.) Which of the following diagnoses should be considered in the differential diagnosis of unstable angina?

   a.) Aortic dissection
   b.) Pericarditis
   c.) Pneumothorax
   d.) Pulmonary embolus
   e.) None of the above
   f.) All of the above

Answer: f.

17.) 63yo M presents with heart murmur. He is completely asymptomatic & active. Exam shows carotid delay, single S2 & 3/6 mid-peaking SEM. TTE shows normal LV size and function, calcified aortic valve & mean aortic valve gradient of 52 mmHg with an AVA of 0.8 cm². Which is the next best step?

   a.) Treadmill exercise stress test
   b.) Right and left heart catheterization with coronary angiography
   c.) PABV
   d.) AVR after coronary angiogram
   e.) Observation with IE prophylaxis

Answer: a.

18.) Which one of the following patients needs endocarditis prophylaxis?

   a.) Patient with isolated secundum ASD having dental extraction
b.) Patient with ligated patent ductus arteriosus having cystoscopy
c.) Patient with an AVR that is functionally normal, having dental cleaning and scaling
d.) Patient with coarctation having cardiac catheterization
e.) Patient with primum ASD having TEE

Answer: c.

19.) An echocardiogram is performed and it shows the presence of AR. Which of the following is the most frequent cause of AR leading to surgery in the United States?

a.) Rheumatic disease  
b.) Bicuspid aortic valve  
c.) IE  
d.) Syphilis  
e.) Degenerative aortic valve disease with or without annuloaortic ectasia

Answer: e.

20.) True statements regarding the surgical management of abdominal aortic aneurysms include all of the following EXCEPT:

a.) Large aneurysms enlarge faster than smaller ones  
b.) Aortic aneurysms grow and rupture at similar rates in men and women  
c.) Aneurysms >5.5cm in diameter should undergo surgical repair  
d.) In men, surgical repair of aneurysms with diameters of 4 to 5.5cm offers no mortality benefit over continues surveillance  
e.) With aneurysmal rupture, 60 percent of patients die before reaching the hospital

Answer: b.

21.) Each of the following statements about patients with peripheral arterial disease (PAD) is correct EXCEPT:

a.) Intermittent claudication is characterized by pain precipitated by walking as well as by standing upright for several minutes  
b.) On examination, arterial bruits, diminished distal pulses, and hair loss of the affected extremity are common  
c.) Segmental pressure measurement demonstrate gradients of >20mmHg in the lower extremities or >10mmHg in the upper extremities  
d.) The ankle/brachial index is frequently <1.0  
e.) Magnetic resonance angiography is >90% sensitive and specific for the diagnosis of PAD in the aorta, iliac, femoral-popliteal and tibial-peroneal arteries
22.) Each of the following statements is true EXCEPT:

a.) An ankle/brachial index >0.85 is considered normal
b.) A pressure difference >20mmHg between successive cuffs is evidence of significant arterial stenosis
c.) Critical limb ischemia is associated with an ankle/brachial index of 0.5 or less
d.) D. The sensitivity of the ankle/brachial index for the diagnosis of peripheral arterial disease is decreased in severely calcified arteries

Answer: a.

ENDOCRINOLOGY

1.) A 65 year old male presents with recurrent calcium kidney stones. He is found to have a calcium level of 11.8 mg/dl. PTH level is elevated. Serum creatinine is 1.4 mg/dl. 24 hour urine calcium excretion is elevated. Parathyroid Sestamibi scan is performed but does not reveal any abnormality. The most likely cause of the hyperparathyroidism is:

a.) solitary benign parathyroid adenoma, but more than one adenoma is possible
b.) parathyroid cancer
c.) MEN syndrome
d.) tertiary hyperparathyroidism due to renal insufficiency
e.) occult malignancy either metastatic to bone or producing PTH-related peptide

Answer: a.

2.) Treatment of the above patient with hypercalcemia might best include:

a.) hydration; followed by monthly doses of zoledronic acid or pamidronate.
b.) surgical neck exploration if age under 50 years old, calcium 1 mg/dl or more higher than the top normal range, worsening renal function, bone density with a T-score of -2.5 or worse.
c.) stop all vitamin D supplementation.
d.) glucocorticoids
e.) furosemide

Answer: b.

3.) A 74 year old Caucasian female had a bone density study (DXA) which revealed T-score of the right femoral neck of -2.8, left femoral neck of -2.9. The spine had degenerative changes and could not be interpreted. FRAX calculation revealed fracture risk of 10% ten year risk of hip fracture and 30% ten year risk of major osteoporotic fracture. She had a traumatic wrist fracture a few years ago. Family
history is positive for a mother with a hip fracture. Management of this patient would best include:

a.) no treatment since her wrist fracture was traumatic  
b.) No treatment since her FRAX risk is low  
c.) estrogen  
d.) denosumab (Prolia), a bisphosphonate, or Forteo could be used interchangeably since they all are anti-resorptive agents  
e.) replete vitamin D if low and start an anti-resorptive agent

Answer: e.

4.) A healthy but obese 55 year old African-American male has a fasting glucose of 150 mg/dl and an A1c of 7% at his yearly office visit. He is told he has type 2 diabetes mellitus. He is given a referral to see the dietitian and start diabetes education classes. Liver and kidney function tests are normal. He is given a prescription for a glucose monitor. The best next step is:

a.) MRI of the head and adrenals since he likely has Cushings syndrome  
b.) institute metformin at this visit since his renal and hepatic function tests are normal  
c.) avoid exercise completely since he likely has undiagnosed heart disease  
d.) start a sulfonylurea or Actos as monotherapy at this visit  
e.) wait 3 months and if his A1c is still 7% or higher, start metformin

Answer: b.

5.) A 62 year old obese female with type 2 diabetes mellitus for 12 years is on a sulfonylurea alone. Metformin was stopped two years ago due to diarrhea at even a low dose. A1c is 10% but she has been having frequent hypoglycemia, even after reducing the dose of the sulfonylurea. She has significant lower extremity edema and recurrent episodes of congestive heart failure. The best option would be:

a.) stop the sulfonylurea and change to a DPP-4 inhibitor since the risk of hypoglycemia is low on this agent  
b.) pioglitazone is contra-indicated in her due to chronic congestive heart failure  
c.) add Lantus to the sulfonylurea  
d.) since she is likely insulin deficient, the A1c is very high, and she has had diabetes for a long time, she is probably not a candidate for basal plus bolus insulin therapy  
e.) she doesn’t need to go to a dietitian or diabetes education classes since she is non-compliant

Answer: b.

6.) Regarding type 1 diabetes mellitus,
insulin pump therapy should be reserved for non-compliant patients or patients who have very high A1c’s on conventional insulin therapy

b.) many patients will benefit from MDI (multiple daily injections) including basal and bolus insulins, but must be taught how to use this regimen effectively

c.) DCCT (Diabetes Control and Complications Trial) was a major trial of patients in type 2 diabetes mellitus; UKPDS (United Kingdom Prospective Diabetes Study) was a major trial in type 1 diabetes

d.) severe DKA (diabetic ketoacidosis) should generally be treated with intravenous Humalog or intravenous Novolog drips

e.) antibodies that might help diagnosis this include GAD-65 antibody and insulin antibody. Other autoimmune diseases, such as celiac disease, hypothyroidism (Hashimoto’s disease), rheumatoid arthritis, etc.) are rare in patients with type 1 diabetes mellitus

Answer: b.

7.) Which of the following is the best for screening thyroid function?

a.) Free T4
b.) TSH
c.) TRH
d.) T3RU
e.) Free T3

Answer: b.

8.) Which would be an expected lab result in hypothyroidism?

a.) Hyperlipidemia
b.) Hypernatremia
c.) Low CPK
d.) Low Prolactin
e.) High TBG

Answer: a.

9.) Which should be used only in the first trimester of pregnancy in the treatment of thyroid disease?

a.) Methimazole
b.) Propylthiouracil
c.) Levothyroxine
d.) Triiodothyronine
e.) Armour thyroid
10.) The measured radioactive iodine uptake is always low in which of the following?

   a.) Graves disease
   b.) Hot nodule
   c.) Toxic MNG
   d.) Struma Ovarii
   e.) Hashimoto thyroiditis

Answer: d.

11.) Which of the following are the expected lab findings in anorexia with amenorrhea?

   a.) High estradiol, low FSH
   b.) Low estradiol, low FSH
   c.) Low estradiol, high FSH, high prolactin
   d.) Low estradiol, low prolactin, high FSH
   e.) High estradiol, high FSH, high prolactin

Answer: b.

12.) In which of the following represents hypergonadotrophic hypogonadism expected?

   a.) Hysterectomy with BSO
   b.) Anorexia
   c.) Kallman syndrome
   d.) Hypophysectomy
   e.) Olympic gymnastic athlete

Answer: a.

13.) Which of the following would suggest primary adrenal insufficiency?

   a.) Hyperkalemia, hyperglycemia
   b.) Hyponatremia, hyperkalemia
   c.) Hyponatremia, hypokalemia
   d.) Hypernatremia, hypokalemia
   e.) Hyperglycemia, hypokalemia

Answer: b.
14.) Which of the following would be the expected reason for high aldosterone and low rennin?

a.) Conn Syndrome
b.) CHF
c.) Renal insufficiency
d.) Pregnancy
e.) High potassium diet

Answer: a.

15.) A normal weight 28 year old female with secondary oligomenorrhea and galactorrhea presents to your office. Her prolactin level is elevated. MRI of the sella reveals a 5 mm pituitary microadenoma. You suspect this is a prolactinoma. Other pituitary hormones are normal. Which of the following statements regarding prolactinomas is true?

a.) she will never be able to become pregnant due to the adenoma
b.) cabergoline or bromocriptine would likely be effective choices to lower the prolactin level and cause the prolactinoma to decrease in size
c.) MRI should be obtained yearly to follow the size, even if the prolactin level is suppressed with cabergoline
d.) galactorrhea and oligomenorrhea will likely not improve with treatment.
e.) prolactinomas occur only in females.

Answer: b.

16.) A patient presents to the hospital with head trauma. He has an elevated sodium level and a large volume of dilute urine. He is found to have diabetes insipidus.

a.) This might represent partial or complete central diabetes insipidus
b.) DDAVP (desmopressin) should be started immediately even if sodium level is low
c.) fluid restriction should be initiated
d.) DDAVP (desmopressin) will work well if this is nephrogenic or central diabetes insipidus
e.) MRI of the head with attention to the pituitary does not have to be obtained, since it is obvious that head trauma caused the diabetes insipidus

Answer: a.

17.) A patient with a large non-functioning pituitary macroadenoma is found to have pan-hypopituitarism. He has had orthostasis, nausea, and weight loss for 8-12 months. Which of these would be most consistent with pan-hypopituitarism from a pituitary macroadenoma?
a. low or inappropriately normal TSH and low free T4
b. hypergonadotrophic hypogonadism
c. striae and supraclavicular fat pads
d. normal ACTH stimulation test
e. bilateral central visual field defects

Answer: a.

GENERAL MEDICINE QUESTIONS

1.) A 75-year-old man with new back pain comes to your office. He describes his new back pain with shooting pain down his leg. He notes that he has low back pain with numbness in the left leg. On examination, you find a normal mental status and cranial nerve examination. On motor examination, he has weakness of foot extension and cannot stand on his toes on the left foot. He also has a dropped ankle jerk on the left. This is a lesion of which of the following roots?

   a.) C6 root
   b.) L4 root
   c.) L5 root
   d.) S1 root

Answer: d. This is a fairly classic history for a radiculopathy (S1 root). The localization is important as magnetic resonance imaging and even myelograms may show numerous disks, but in this case only one is symptomatic. C6 would present with arm weakness or numbness. L4 and L5 are not associated with dropped ankle jerks or weakness of foot extension. Standing on your toes requires a functioning gastrocnemius muscle, which is innervated by the tibial nerve, from the S1-S2 nerve root.

2.) A 48-year-old woman with lung cancer presents with onset of weakness in her legs and falls. She notices that she has been having some difficulty with losing control of urine. On motor examination, she presents with bilateral arm/leg weakness with increased tone. The most appropriate test would be:

   a.) Lumbosacral magnetic resonance imaging (MRI)
   b.) Cervical-thoracic MRI
   c.) Electromyography/nerve conduction study
   d.) Test for a ruptured L4 disk

Answer: b. A cervical spinal cord lesion can present with a sensory loss at the level of the abdomen. The clue to the area of the spinal cord lesion is the arm weakness and increased reflexes. This is a cervical spinal cord lesion causing a quadripareisis, and, as C6-C8 innervate the hands and arms, the lesion must be here or higher. Therefore, an MRI of the thoracic spinal cord or higher is needed. This patient's sensory level is not
localizing; it defines the lowest level at which the lesion might be. A lumbosacral MRI will look at the bottom of the cord and roots. There can be no arm weakness and increased tone/reflexes with a lumbosacral lesion.

3.) A 30-year-old woman fell asleep with her legs crossed during a graduate lecture. When she awoke, she noted that the right foot was tingling and noted the foot was "slapping" on the ground. These symptoms most likely represent which of the following?

   a.) Cauda equina syndrome
   b.) Guillain-Barré syndrome
   c.) Peroneal nerve palsy
   d.) L5 radiculopathy

Answer: c. She has developed a compressive neuropathy of the peroneal nerve at the level of the fibular head. Cauda equina syndrome presents with bowel and bladder dysfunction, and flaccid lower extremity paralysis. Guillain-Barré syndrome presents as an areflexic motor paralysis, with or without a sensory disturbance. An L5 radiculopathy represents a more proximal process.

4.) A 72-year-old man presents to your outpatient clinic with the complaint of recurrent spells of hand numbness. On exam he has weakness of finger spreading. He also has sensory loss in the last two fingers splitting the ring finger. The most likely etiology for his symptoms is:

   a.) Recurrent transient ischemic attacks (TIAs)
   b.) C6 radiculopathy
   c.) C7 radiculopathy
   d.) Ulnar neuropathy

Answer: d. Ulnar neuropathies present with sensory loss in the fourth and fifth digit of either hand, usually splitting the ring finger. The major differential for this is a C8 radiculopathy, which would also present with grip weakness as well as a dropped triceps reflex. A C6 radiculopathy or C7 radiculopathy would not present with sensory loss in that distribution. Ulnar weakness is primarily that of finger spreading within the horizontal plane, and loss of bulk in the muscle pad just lateral to the first finger. TIAs are unlikely, given the fact that the sensory loss occurs every day and only at night and that he can "shake it out." The distribution of weakness and sensory loss is atypical for a high cortical lesion.

5.) A 75-year-old patient presents with numbness of the first three fingers of the right hand. Which of the following findings on physical exam are supportive of the diagnosis of carpal tunnel syndrome?

   a.) There is reproduction of symptoms with gentle tapping at the carpal tunnel
   b.) There is a dropped biceps reflex on the same side as the numbness in the hand
c.) There is weakness of grip strength

   d.) There is sensory loss is that does not split the ring finger

**Answer:**  a. Tinel's sign, while not always present, is fairly specific for a carpal tunnel compression. All the other findings are consistent with a radiculopathy, which can also present with numbness in the same distribution but is treated entirely differently.

6.) A 32-year-old woman describes that she has had 1 month of intermittent double vision. During a clinic visit, she has a normal examination with normal motor gait, cranial nerves, and reflexes. The most appropriate work-up at this time would be:

   a.) Electromyography/nerve conduction study (EMG/NCS) and antiacetylcholine antibody testing

   b.) Computed tomography/lumbar puncture/electroencephalography (CT/LP/EEG)

   c.) Cervical spine magnetic resonance imaging (MRI)

   d.) Emergent neurosurgical consultation

**Answer:**  a. Electromyography/nerve conduction study (EMG/NCS) and antiacetylcholine antibody testing. This patient presents with a classic symptom complex for a neuromuscular junction problem: fatigue, not really tiredness, but neurologic symptoms involving the cranial nerves that worsen at the end of the day. A neurologic examination in the morning may be entirely normal. This is a reasonable presentation for myasthenia gravis. An MRI or CT/LP and neurosurgical consults would all be unrevealing. EMG/NCS and acetylcholine antibodies test would demonstrate abnormalities at any time of day.

7.) A 59-year-old woman presents with subacute onset of tingling in her toes. Her reflexes are depressed with downgoing toes. The finding that suggests most strongly that this is Guillain-Barré syndrome and not a spinal cord problem is:

   a.) Her age

   b.) The subacute onset

   c.) The dropped reflexes

   d.) The lack of bowel or bladder incontinence

**Answer:**  d. Her age is noncontributory. The subacute onset suggests more of a nerve problem than spinal cord issue, but spinal cord lesions can present this way. Dropped reflexes typically occur with nerve problems, but spinal shock can present with spinal cord lesions that result in acute and subacute dropped reflexes. Bowel and bladder incontinence occurs late in Guillain-Barré syndrome and usually when patients are quadriplegic and intubated. Bowel/bladder incontinence is common in spinal cord lesions.
8.) A 45-year-old man presents to your office reporting diplopia in all directions. He has a history of hypothyroidism. Blood work and brain magnetic resonance imaging (MRI) are entirely normal. What would you do next?

- a.) Write in his chart that he is malingering
- b.) Schedule him for a lumbar puncture
- c.) Consider Guillain-Barré syndrome
- d.) Schedule him up for an electromyography/nerve conduction velocity (EMG/NCV) study with repetitive stimulation, computed tomography (CT) scan of the chest, and anti–acetylcholine receptor antibody level

**Answer:** d. Because this patient presents with myasthenia gravis with bulbar involvement, you should schedule him for an EMG/NCV study with repetitive stimulation, a CT scan of the chest, and an anti–acetylcholine receptor antibody level. An EMG/NCV study and anti–acetylcholine receptor antibody assay should provide confirmatory results, while the chest CT scan seeks evidence of a thymoma. He is not malingering. Spinal fluid will not provide the disease-specific findings of an EMG/NCV study and anti–acetylcholine receptor antibody screen. Guillain-Barré syndrome presents as an areflexic motor paralysis, with or without a sensory disturbance.

9.) A 28-year-old female has a throbbing, one-sided headache three times a month. It occurs suddenly, persists for 2 days. This is what type of headache?

- a.) Migraine with aura
- b.) Migraine without aura
- c.) Tension-type headache
- d.) Cluster headache

**Answer:** b. This headache is a migraine without aura. The pain is throbbing, unilateral, and incapacitating, and has clear precipitants. A young female is the typical host. Cluster headaches would involve parasympathetic activity and would not last 2 days. Tension-type headaches are not typically incapacitating.

10.) A 31-year-old male presents to your office reporting that he has the onset of a severe, unilateral headache that has been intermittent for 1 week at night. He denies tobacco or drug use. His physical exam is normal. What is the likely diagnosis?

- a.) Migraine without aura
- b.) Tension headache
- c.) Cluster headache
- d.) Subarachnoid hemorrhage
- e.) Trigeminal neuralgia

**Answer:** c. This patient presents with a cluster headache. The host for cluster headaches is usually male. The headaches are severe, unilateral, and "cluster" for periods of time,
and have a circadian or nightly pattern. The parasympathetic overactivity is also part of this type of headache. Migraine without aura typically does not have the parasympathetic features, and patients tend to want to rest in a dark room. Tension-type headaches are typically not as incapacitating. Subarachnoid hemorrhage is not usually associated with parasympathetic features. Trigeminal neuralgia typically involves only the second or third division of the trigeminal nerve.

11.) A 60-year-old female with a 30-year history of migraine headaches with visual auras presents for her clinic visit. She reports that her headaches have become more frequent over the last 3 months. What would you suggest next?

   a.) Start a β-blocker as prophylaxis
   b.) Refer her for magnetic resonance imaging (MRI) of brain
   c.) Send her for audiology testing
   d.) Ask her to discontinue any nonsteroidal medications she is taking
   e.) Measure an erythrocyte sedimentation rate (ESR)

Answer: e. The change in headache pattern in this older patient should warrant further evaluation. Her systemic symptoms are suggestive of giant-cell arteritis (GCA), and an elevated ESR would confirm your diagnosis. Without the systemic symptoms suggesting GCA, MRI would be warranted due to the change in headache pattern.

12.) A 50-year-old female with a 25-year history of migraine headaches with visual auras presents for her clinic visit and has been having them more frequently (once a week) exam is What would you suggest next?

   a.) Start a β-blocker as prophylaxis for the headaches
   b.) Refer for magnetic resonance imaging of the brain
   c.) Send her for audiology testing
   d.) Ask her to discontinue any nonsteroidal anti-inflammatory drug or aspirin she is taking

Answer: b. The change in headache character in a patient above age 50 and new neurologic symptoms (tinnitus) would be considered "red flags" of a possible underlying pathology for the headaches. Neuroimaging is warranted.

13.) A 58-year-old man presents with pain and stiffness of his right shoulder and clumsiness of the right hand and reports his handwriting has gotten smaller. He has fell on the stairs and has bad balance. What is the most likely diagnosis that you have in mind as you start your exam?

   a.) Arthritis of the shoulder joint
   b.) Rotator cuff injury on the right side
   c.) Parkinson disease
   d.) Stroke affecting the left hemisphere
14.) An 87-year-old man with long-standing dementia presents with a sudden loss of consciousness and a fall. A head computed tomography scan reveals a large left frontal lobar hematoma. The most likely diagnosis is:

a.) Intracerebral hemorrhage from amyloid angiopathy  
b.) Intracerebral hemorrhage from rupture of an arteriovenous malformation (AVM)  
c.) Intraparenchymal rupture of a cerebral aneurysm of the circle of Willis  
d.) Frontal lobe contusion  
e.) Intracerebral hemorrhage from metastatic tumor

Answer: a. Amyloid angiopathy is a condition associated with older age and particularly with Alzheimer disease. Amyloid deposition in the cerebral vessels leads to fragmentation and weakening of the vessel walls, resulting in lobar hemorrhages, which are often recurrent. AVMs and aneurysms are more common causes of intracranial hemorrhage in younger patients. Metastatic tumor can cause multiple lobar hemorrhages, but it is unlikely a patient would recover from such a hemorrhage because the tumor would likely continue to grow.

15.) A 56-year-old woman with a history of atrial fibrillation presents with 3 hours of acute-onset aphasia, hemiparesis, neglect, and forced gaze deviation. CT was WNL. The most common reason for this is:

a.) Malingering  
b.) CT scans are often normal in the first 6 hours after stroke  
c.) The etiology is a hemorrhage that does not show up on CT scan  
d.) This is not stroke but status epilepticus

Answer: b. Conventional CT scans can be normal for hours after an acute stroke. Signs of stroke can be very subtle. Magnetic resonance imaging with diffusion-weighted imaging can identify strokes within minutes of onset.

16.) A 66-year-old woman presents to the emergency room with 5 hours of right-sided face and arm numbness and weakness. In the ER, her examination confirms both a sensory and motor deficit involving the right face and arm. Which of the following statements is true regarding her condition?
a.) Antiplatelet therapy is a reasonable choice for treatment
b.) The lesion is most likely located in the thalamus
c.) The lesion is most likely located in the internal capsule
d.) If carotid Doppler exams reveal a right-sided stenosis of 50%, she would definitely benefit from carotid endarterectomy
e.) First-line treatment is tissue plasminogen activator (tPA) administered immediately

Answer: a. This woman is suffering from an acute infarct. Given involvement of unilateral face and arm but sparing of the leg, it is likely to be a cortical stroke resulting from embolization from carotid artery atherosclerosis. Antiplatelet therapy with aspirin or clopidogrel is a reasonable course of action. A thalamic lesion would most likely produce a unilateral sensory deficit but not a motor deficit as in this patient. An internal capsule lesion would involve motor weakness of the leg in addition to the face and arm. Carotid endarterectomy is most beneficial in symptomatic patients with carotid stenoses of 70% or greater. Finally, the patient's presentation after 5 hours of symptoms would preclude her from receiving tPA (it should be given within 3 hours of the onset of symptoms for the benefit to outweigh the risk).

17.) A 34-year-old woman with history of a miscarriage 5 years ago presents with new right-sided hemiparesis and slurred speech for the past 2 hours. Her symptoms slowly resolve while in the emergency department. Which of the following is an appropriate course of action?

   a.) No further testing is necessary, as this is her first transient ischemic attack (TIA)
   b.) Check protein C and protein S levels
   c.) Check for antiphospholipid antibodies
   d.) Check factor VIII levels
   e.) Both B and C

Answer: e. Stroke or TIA in a young patient with no cardiac risk factors always deserves further evaluation. Patients should have a hypercoagulability work-up, including antithrombin III levels, proteins C and S levels, lupus anticoagulant, antiphospholipid antibodies, and homocysteine level. Factor VIII levels are not part of the screen for hypercoagulability (rather a deficiency, hemophilia A, leads to bleeding and not to thrombosis). Other related factors should also be considered when the young individual presents with an ischemic event, such as cocaine or stimulant use.

18.) A patient shows eosinophilic folliculitis on skin biopsy of some pruritic lesions on his back. He most likely has which type of infection?

   a.) Staphylococcus
   b.) Mycobacterium
   c.) HIV
   d.) Corynebacterium
e.) *Pityrosporum*

Answer: c.

19.) A patient with myasthenia gravis presents with a bullous dermatitis with involvement of the oral mucosa and a positive Nikolsky’s sign. He most likely has:

a.) erythema multiforme.
b.) DRESS syndrome.
c.) small vessel vasculitis.
d.) Staphylococcal cellulitis.
e.) pemphigus.

Answer: e.

20.) It would be most logical to screen a patient with vitiligo for the presence of which antibodies?

a.) Thyroid 
b.) Mitochondrial 
c.) Cardiolipin 
d.) Smooth muscle 
e.) Tissue transglutaminase

Answer: a.

21.) A 42 y/o male patient with a family history of type 2 diabetes is on metformin for glucose intolerance and lisinopril for hypertension. LDL-cholesterol is found at 133 mg/dL and a statin is started. Which of the following should be monitored more closely?

a.) HDL-C  
b.) LDL-C  
c.) Glucose  
d.) BP  
e.) urine for proteinuria

Answer: c.

22.) A 45 y/o male patient with a history of angina develops an outpatient pneumonia and is placed on azithromycin. The patient should be told to avoid:

a.) St John’s wort  
b.) grapefruit juice  
c.) antacids  
d.) vitamin A
e.) yogurt

Answer: b.

23.) A 55 y/o female has been on alendronate for 4 years. Bone mineral density measurement shows a T score of – 1.8. She has a history of GERD and reports one episode of atrial fibrillation. There is no fracture history. Best advice to this patient is to:

a.) switch to zoledronic acid.
b.) take a drug holiday.
c.) continue the alendronate for two more year.
d.) continue alendronate indefinitely.
e.) discontinue alendronate permanently.

Answer: b.

24.) Which of the following diets should be prescribed to a patient with Parkinson disease?

a.) low protein
b.) mediterranean
c.) paleolithic (paleo)
d.) Atkins
e.) low-fat dairy

Answer: a.

25.) Which of the following diets would be most helpful to a patient with gout?

a.) low protein
b.) mediterranean
c.) paleolithic (paleo)
d.) Atkins
e.) low-fat dairy

Answer: e.

26.) Infections with *Burkholderia cepacia* are typically associated with which of the following inherited disorders?

a.) cystic fibrosis
b.) hemochromatosis
c.) sickle cell anemia
d.) Wilson disease
e.) G6PD deficiency
Answer: a.

27.) Mutations of the ATP7B gene is characteristic of which of the following?

a.) cystic fibrosis  
b.) hemochromatosis  
c.) sickle cell anemia  
d.) Wilson disease  
e.) G6PD deficiency

Answer: d.

GASTROENTEROLOGY QUESTIONS

1.) A patient with sudden onset of severe epigastric pain, vomiting, with an US showing edematous pancreas, normal size CBD and normal liver enzymes and an alcohol history probably has which of the following?

a.) Dissecting aortic aneurysm.  
b.) Neuroendocrine tumor.  
c.) Common duct stone.  
d.) Esophageal manometry  
e.) Acute pancreatitis

Answer: e.

2.) The previous patient gets admitted and treated with fluids and pain medicine and is improved by the second day of admission. Which statement below is most accurate of his prognosis?

a.) His chance of survival is low.  
b.) Pancreatic necrosis is unlikely.  
c.) A normal CRP and hematocrit are poor prognostic signs.  
d.) Without antibiotics his chance of recovery is slim.

Answer: b.

3.) A 59 year old male with chronic epigastric pain and mild icterus has a pancreatic mass on CT, ductal narrowing and diffuse enlargement of the pancreas. CBD is normal. Least likely diagnosis is which?

a.) Burned out chronic pancreatitis.  
b.) Cancer of the pancreas.  
c.) Autoimmune pancreatitis.
d.) Neuroendocrine tumor.

Answer: a.

4.) On the previous patient lab work is consistent with obstructive jaundice. T. Billi is 12. Which one of the following would not be helpful in making a diagnosis?

   a.) A trial of steroids.
   b.) Amylase and lipase.
   c.) Imaging the biliary tree with MRCP or ERCP.
   d.) Checking the serum for autoantibodies, gammaglobulins and IgG4.

Answer: b.

5.) A patient with atrophic gastritis mostly in the fundus is at risk for which of the following?

   a.) Pernicious anemia.
   b.) Peptic ulcer disease.
   c.) MALT lymphoma.
   d.) High serum gastrin levels resulting in very high acid secretion.

Answer: a.

6.) In an elderly patient on ibuprofen with a 3 cm gastric ulcer and H. Pylori which statement is the best choice?

   a.) Start a PPI and repeat the EGD in 2 or 3 months.
   b.) Stop the ibuprofen, treat the infection with a PPI and antibiotics 10-14 days, repeat EGD in 2 or 3 months, check for eradication of the H. Pylori.
   c.) Treat the infection with a PPI and antibiotics for 10-14 days then continue the PPI while continuing the ibuprofen the whole time.
   d.) Treat the infection as above, stop the ibuprofen, repeat the EGD in 2 to 3 months and obtain a serum gastrin level.

Answer: b.

7.) A 30 year old patient with type 1 diabetes mellitus has an EGD for nausea, vomiting and abdominal pain. EGD shows erythema and retained food. Most likely diagnosis is which?

   a.) H. Pylori infection
   b.) MALT lymphoma
   c.) Autoimmune metaplastic atrophic gastritis
   d.) Diabetic gastroparesis
Answer: d.

8.) If the previous patient has no peptic ulcer disease and normal biopsies which would be the next test to order?

a.) CT scan of the abdomen.
b.) H. Pylori serologies.
c.) Solid phase gastric emptying study.
d.) Serum gastrin levels.

Answer: c.

9.) A 70 year old female has chronic watery diarrhea for 8 weeks. She has no prior history of G.I. disease. Colonoscopy at age 60 was normal. There’s no pain or weight loss. Her most likely diagnosis is which?

a.) An infection  
b.) Colon cancer  
c.) Microscopic colitis  
d.) Irritable bowel syndrome

Answer: b.

10.) Colonoscopy on the previous patient reveals 3 small adenomatous polyps, diverticulosis and normal mucosa otherwise. Stool studies are negative. Pathology shows a thick collagen band. Her diagnosis is which?

a.) Clostridium difficile infection.  
b.) Diverticulosis.  
c.) Colitis Cystica Profunda.  
d.) Collagenous colitis.

Answer: d.

11.) A 25 year old woman with Crohn’s disease is steroid dependent at 10 mg a day even on full dose mesalamine. Stool studies are negative. She refuses a biologic. The best strategy would be which of the following?

a.) Up the prednisone to 40 mg and switch mesalamine products  
b.) Start her on methotrexate  
c.) Start azathioprine and begin weaning the prednisone after about 12 weeks  
d.) Up the prednisone to 40 mg, add mesalamine enemas and budesonide (Entocort) maximum dose

Answer: c.
12.) Three months the previous patient is much improved but presents with large open sores on the anterior aspect of her lower extremities. They are non-painful. Diagnosis is which?

   a.) Pyoderma gangrenosum  
   b.) Erythema nodosum  
   c.) Sepsis from a pelvic abscess  
   d.) Secondary to one of her medications

Answer: a.

13.) A 74 year old man presents with progressive dysphagia to solids and an 8 lb. weight loss. He has a history of tobacco and alcohol use over many years. Most likely cause of his dysphagia is which of the following?

   a.) Barrett’s esophagus  
   b.) Gastroesophageal reflux disease  
   c.) Adenocarcinoma of the esophagus  
   d.) Squamous cell carcinoma of the esophagus

Answer: d.

14.) On the previous patient an EGD shows a near obstructing mass proximal to the GEJ. Workup shows wide spread metastasis. It was able to metastasize quickly for which of the following reasons?

   a.) It’s a more aggressive type of cancer than any other.  
   b.) Gastric acid itself is carcinogenic.  
   c.) The esophagus has no serosa.  
   d.) Tobacco and alcohol cause metastasis earlier.

Answer: c.

15.) A 55 year old man presents that has rectal bleeding. He had a normal colonoscopy at age 50. Family history is negative for CRC. Repeat colonoscopy shows a large mass in the proximal ascending colon. Which of the following is correct?

   a.) This is not an interval cancer.  
   b.) This could be part of a familial syndrome.  
   c.) This is a synchronous tumor.  
   d.) He should have a repeat colonoscopy sooner.

Answer: b.
16.) A 42 year old female ask you about screening. Her dad was diagnosed with CRC at age 49. Her dad’s brother was diagnosed at age 50 with CRC and he had long standing ulcerative colitis. She should start screening when?

a.) 10 years before her father’s age at his diagnosis.
b.) When she turns 50.
c.) Being female her risk is lower so age isn’t important.
d.) She should have a flex. Sig. and FOBT yearly the rest of her life.

Answer: a.

17.) 55yoM w/ findings suggestive of barrett’s esophagus on EGD. Pathology confirms w/ intestinal metaplasia and no dysplasia. What are current surveillance recs?

a.) Repeat in one year if still no dysplasia repeat every 3 years.
b.) Repeat every 3 years.
c.) Repeat every 6 months x2 and if no dysplasia repeat every year.
d.) Repeat every 5 years.

Answer: a.

18.) 21yoM presents to ER w/ food bolus. He says this occurred before but he is able to advance food w/ fluid. On EGD you notice whitish plaques & multiple ring-like appearance of esophagus. What would help confirm dx?

a.) Trial of proton pump inhibitor.
b.) 15 eosinophils per high powered field on biopsies.
c.) Manometry results showing high amplitude contractions.
d.) UGI x-ray showing dilated esophagus and tight LES.

Answer: b.

19.) 29yo w/ mild watery diarrhea after camping in WA. Drank water from mountain streams. No abdominal pain or masses on PE. Afebrile, +BS. Stool neg for occult blood. Diarrhea abates after 3wks. His children have similar symptoms. Which of the following most likely caused his disease?

a.) Rotavirus.
b.) Shigella flexneri.
c.) Vibrio cholerae.
d.) Giardia lamblila.
e.) Salmonella enteritidis

Answer: d.
20.) What is the most consistent laboratory abnormality that may occur in small bowel bacterial overgrowth?

   a.) Vitamin K malabsorption.
   b.) Gapped PT/INR.
   c.) Vitamin C Malabsorption.
   d.) Vitamin B12 malabsorption.
   e.) Iron deficiency anemia

   Answer: d.

21.) 25yoM w/ intermittent jaundice. Total bilirubin is 3.7. The remainder of his liver functions tests are normal. Urinalysis is normal with no evidence of bilirubin. What is his likely diagnosis?

   a.) direct hyperbilirubinemia.
   b.) primary biliary cirrhosis.
   c.) autoimmune hepatitis.
   d.) indirect hyperbilirubinemia.

   Answer: d.

22.) Cirrhotic pt w/ ascites is taking spironolactone 100mg & furosemide 40mg daily. He is gaining 1/2LB daily. Lab: bili 2.8mg/dL, creatinine 1.4mg/dL, and serum sodium 129mEq/L. urinary sodium is 80mEq/L and daily urine output is 1.5L. What is the appropriate management?

   a.) Increase spironolactone to 200mg.
   b.) Increase furosemide to 80mg.
   c.) Increase both.
   d.) Ensure sodium restriction to 90mEq/d.
   e.) Add torsemide (demadex) 5mg daily

   Answer: d.

PULMONARY DISEASES QUESTIONS

1.) Which of the following hypercoaguable states is associated with both arterial and venous thrombosis?

   a.) Factor V Leiden
   b.) Prothrombin G20210A
   c.) Hyperhomocysteinemia
   d.) Protein C deficiency
   e.) Protein S deficiency
Answer: c.

2.) In a patient with pulmonary embolism thrombolytic therapy should be given:

   a.) to all patients unless there are contraindications  
   b.) to patients who are hypotensive  
   c.) only to normotensive patients  
   d.) in combination with low molecular weight heparin  
   e.) after unfractionated heparin has been

Answer: b.

3.) A patient with suspected pulmonary embolism has a low Wells score and a negative D-dimer. The patient should:

   a.) be treated with low molecular weight heparin then CT pulmonary angiogram.  
   b.) be sent for pulmonary angiogram without anticoagulation  
   c.) have venous ultrasound of both lower extremities  
   d.) have a ventilation-perfusion lung scan performed  
   e.) have no further work up.

Answer: e.

4.) In a patient with sepsis which of the following would likely be elevated?

   a.) arterial bicarbonate  
   b.) arterial oxygen tension  
   c.) arterial carbon dioxide tension  
   d.) mixed venous oxygen tension  
   e.) mixed venous oxygen tension

Answer: d.

5.) In order to reduce autoPEEP you should increase:

   a.) expiratory time  
   b.) tidal volume  
   c.) minute ventilation  
   d.) plateau pressure  
   e.) PEEP

Answer: a.
6.) When interpreting spirometry findings which of the following best reflects the level of obstruction?

   a. FVC  
   b. FEV1  
   c. FEV1/FVC  
   d. FEF25-75%  
   c. PEF

Answer: c.

7.) A 25 Y.O. male presents with a cough of three months duration and erythematous nodules on his legs for three weeks. He worked around asbestos briefly as a teenager. His chest radiograph showed bilateral, upper lobe interstitial infiltrates. The most likely diagnosis is:

   a.) Idiopathic pulmonary fibrosis  
   b.) Asbestosis  
   c.) Langerhans cell granulomatosis  
   d.) Sarcoidosis  
   e.) Chronic eosinophilic pneumonia

Answer: d.

8.) Which of the following diseases is often associated with an acute clinical course?

   a.) Idiopathic pulmonary fibrosis  
   b.) Asbestosis  
   c.) Rheumatoid lung  
   d.) Langerhans cell granulomatosis  
   e.) Bronchiolitis obliterans organizing pneumonia

Answer: e.

9.) Hypersensitivity Pneumonitis is:

   a.) Associated with inhalation of an inorganic dust  
   b.) Sometimes associated with granuloma formation  
   c.) Not chronic in its course  
   d.) Associated with lymphocytic infiltrates during acute disease  
   e.) More common in children

Answer: b.

10.) All of the following are obstructive lung diseases except:
a.) Cystic Fibrosis
b.) Idiopathic Pulmonary Fibrosis
c.) Alpha 1 Antitrypsin Deficiency
d.) Bronchiectasis
e.) Asthma

Answer: b.

11.) All of the following decrease theophylline clearance except:

   a.) Marijuana  
b.) CHF  
c.) Cirrhosis  
d.) Viral infections  
e.) Caffeine

Answer: a.

12.) A rare side effect of leukotriene antagonists is:

   a.) Langerhans cell histiocytosis  
b.) Systemic Lupus Erythematosi  
c.) Cirrhosis  
d.) Eosinophilic pneumonia  
e.) Churg Strauss Syndrome

Answer: e.

13.) Which of the following is a subtype of bronchogenic adenocarcinoma?

   a.) Adenoid cystic carcinoma  
b.) Bronchoalveolar cell carcinoma  
c.) Mucoepidermoid cell carcinoma  
d.) Atypical carcinoid  
e.) Sarcomatoid carcinoma

Answer: b.

14.) Which of the following is usually not an option in the treatment of small cell lung cancer?

   a.) Radiation therapy  
b.) Prophylactic cranial irradiation  
c.) Chemotherapy  
d.) Surgery  
e.) Surgery and radiation
15.) The most common type of lung cancer in nonsmoking women is:

- a.) Carcinoid
- b.) Squamous cell carcinoma
- c.) Adenocarcinoma
- d.) Large cell carcinoma
- e.) Bronchoalveolar cell carcinoma

Answer: c.

SLEEP MEDICINE QUESTIONS

1.) A 40-year-old presents complains of chronic snoring and fatigue. The patient has mild asthma, chronic nasal congestion with septal deviation and seasonal allergies. A sleep study demonstrated an apnea/hypopnea index of 17/h. The patient has a history of TMJ pain and was not felt to be a candidate for dental appliance. Nasal CPAP was discussed. Which of the following makes it less likely he’ll have a good response for this device?

- a.) Positional apnea.
- b.) Nasal obstruction
- c.) Patient’s gender
- d.) The AHI greater than 15

Answer: b.

2.) Your hospital is reviewing all the quality improvement programs and has decided that perioperative screening and management for patients with or at high risk for obstructive sleep apnea should be addressed. You are asked to assist with this program. As a screening for obstructive sleep apnea, which of the following has been shown to have the best sensitivity and specificity in a perspective study of surgical patients?

- a.) Epworth Sleepiness Scale
- b.) The STOPBANG, (snoring, tired, obstruction, pressure, pressure, BMI, age, neck, gender)
- c.) The sleep apnea sleep disorder questionnaire
- d.) German Questionnaire

Answer: b.
3. When comparing polysomnogram between a 16-year-old and a 65-year-old with finding would be expected?

   a.) Shorter sleep latency in the 65-year-old
   b.) A longer REM latency in the 16-year-old
   c.) More REM cycles in the 65-year-old
   d.) More arousals in the 65-year-old

Answer: d.

4. A 50-year-old with diabetes and depression complains of difficulty with a finding of sleep-related uncomfortable crawling sensation in her extremities. The sensation improves when she moves her legs and or gets up to walk. The sensation occurs 4-5 nights per week and only after getting into bed. On physical examination there are no dermatologic or neurologic abnormalities identified. Which of the following is most likely diagnosis?

   a.) Psychiatric depression
   b.) Sleep related leg cramps
   c.) Rhythmic movement disorder
   d.) Restless leg syndrome
   e.) Peripheral neuropathy

Answer: d.

5. A 64-year-old male is referred for a sleep study. He has a history of CAD. An echocardiogram a month ago showed an EF of 30%. He notes occasional PND and restless sleep. He is fatigued during the day and usually naps each afternoon. His medications include Isosorbide Dinitrate, Lisinopril, Atenolol, and Lasix. He undergoes an overnight polysomnography. Which of the following awake arterial blood gas measurements would you expect in this patient?

   a.) pH 7.43, PaCO\(_2\) 32 mmHg, PaO\(_2\) 80 mmHg, oxygen saturation of 95%
   b.) pH 7.40, PaCO\(_2\) 40 mmHg, PaO\(_2\) 85 mmHg, oxygen saturation of 96%
   c.) pH 7.36, PaCO\(_2\) 48 mmHg, PaO\(_2\) 65 mmHg, oxygen saturation of 88%
   d.) pH 7.36, PaCO\(_2\) 48 mmHg, PaO\(_2\) 50 mmHg, oxygen saturation of 85%

Answer: a.

6. Which of the following antidepressants is most likely to NOT to suppress REM sleep?

   a.) Paroxetine (Paxil) SSRI
   b.) Trazodone (Desyrel) SSRI/Antagonist
   c.) Doxepin (Sinequan, Deptran) TCA
   d.) Phenelzine (Nardil) MAOI

Answer: d.
Answer: b.

7.) Which are the following statements about obstructive sleep apnea (OSA) is true?

a.) There is 6-8 fold greater risk for adult man compared to adult women.
b.) The prevalence is significantly higher in middle age (40-60 years old) compared to older age greater than 60).
c.) The development of hypertension occurs over 4-5 years. And is only associated with moderate to high level elevation of apnea/hypopnea index greater than 15/h at baseline.
d.) Insulin resistance is more common in obstructive sleep apnea patients even after adjustment for body mass index.
e.) Treatment for obstructive sleep apnea consists consistently lowers both daytime and nocturnal blood pressure in the majority of hypertensive patient’s.

Answer: d.

8.) A 55-year-old male is evaluated for excessive daytime sleepiness and hypertension. His wife reports that he snores loudly. He also had a minor car accident when he fell asleep while driving. The patient is obese with a BMI of 32 along with a thick neck and a blood pressure of 145/90 mmHg. Cardiopulmonary examination is normal with no lower extremity swelling. Routine laboratory work was unremarkable. What is the most appropriate next step?

a.) Attend laboratory polysomnography
b.) Nighttime continuous pulse oximetry.
c.) Automated positive airway pressure therapy evaluation
d.) Prescribe modafinil therapy

Answer: a.

NEPHROLOGY QUESTIONS

1.) A 36 y.o female is admitted to your service for diarrhea and dehydration. She was in good health until she recently had an abrupt onset of fever, chills, and abdominal pain. Her husband mentions that their daughter is being evaluated at the local Children’s Hospital for a similar problem. On exam she is acutely ill but alert, BP 88/60 HR 120, poor skin turgor but no rash or other significant findings. Her lab: creatinine 3.6, BUN 32, ATL 245,AST 270, t. bili 2.9, Hb 8.2, normal indices, plat 16K, Fragmented RBCs are noted on the peripheral smear, hepatitis titers negative, Urine sediment shows some granular casts and a specific gravity of 1.150. Which statement best characterizes her prognosis?
a.) The fact that her husband is not ill portends a good prognosis
b.) The fact that her husband is not ill portends a poor prognosis
c.) The fact that her daughter is ill portends a good prognosis
d.) The fact that she has diarrhea portends a poor prognosis
e.) The fact that she had diarrhea portends a good prognosis

Answer: e.

2.) You are seeing a 54 y.o. man admitted for abdominal pain, fever, multiple arthralgias, purpural rash, and renal failure. He was in good health until 2 weeks ago when he developed an upper respiratory infection. He treated it with some OTC remedies and rest. About a week ago he noticed a series of purple spots which have coalesced on his leg. He has been having severe abdominal cramping pain, hematuria, and arthralgias.

On admission he appeared ill, but able to give a history. His skin turgor was decreased, BP 98/60, palpable purpural were noted on his legs and buttocks. Lab was remarkable for a creatinine of 4.8, BUN 37, K 5.6, WBC 12.4, Hb, 11.9, UA SG 1.005, large blood and protein, multiple granular casts, RBCs and RBS casts. Renal US was normal. Which statement is true about this patient’s diagnosis?

a.) His ANA will be strongly positive
b.) His p and c ANCA’s will both be positive
c.) Considering his age, prostate cancer is a likely underlying cause
d.) Statistically, his 5 y.o. grandson would also be in a susceptible age group for this condition
e.) None of the above

Answer: d

3.) You are seeing a 28 y.o. female who is admitted for renal failure. She had been in good health until about 10 days ago when she developed a “flu like illness” characterized by fever, chills, myalgias, nausea, anorexia, diarrhea and vomiting, but no rash. (HINT: she does NOT have an eating disorder) 2 days ago she saw, “old doc” who gave her some antibiotic injection, a “steroid shot” and put her on ciprofloxin. On admission her BP is 70/palp, HR 136, dry mucous membranes, her exam was notable for some mild and non-focal abdominal tenderness, but no rebound, guarding, hepatic or splenic enlargement.

Significant lab: BUN 49, creatinine 2.4, K 2.8, HCO3 22, UA SG 1.300, trace protein, Renal US negative. Which of the following is true concerning this patient?

a.) Her urine for eosinophils will be positive
b.) A renal biopsy will reveal IgA nephropathy
c.) Her anti-DS DNA will be strongly positive
d.) She should not get pregnant
e.) Fluids will resolve the problem
4.) A newly diagnosed Type 2 diabetic is being seen in your office. They are well controlled on metformin, following their diet, exercising and losing weight. Which of the statement(s) is/are true concerning this patient’s risk for ESRD?

   a.) Retinopathy is predictive of the risk renal disease  
   b.) The degree of proteinuria  
   c.) The degree of creatinine elevation at time of diagnosis is predictive  
   d.) The degree of systolic BP elevation is predictive  
   e.) All of the above

Answer: e.

5.) A 56-year-old woman is found to have normochromic-normocytic anemia, hypophosphatemia, hypouricemia, glycosuria, proteinuria (1+ by dipstick testing), and renal insufficiency (serum creatinine concentration of 2.6 mg/dl). Urine protein excretion was 3.1 g/d. Which ONE of the following is the MOST LIKELY cause of this constellation of findings?

   a.) Medullary cystic disease  
   b.) Lead intoxication  
   c.) Aristolochic acid intoxication  
   d.) Multiple myeloma  
   e.) Adult-onset cystinosis

Answer: d.

6.) 26-year-old man is found to have IgA nephropathy on a renal biopsy performed for intermittent hematuria and persistent proteinuria (1.8 g/d). His serum creatinine is 1.2 mg/dl. Urinary protein excretion declines to 1.5 g/d, and the serum creatinine increases to 1.3 mg/dl after 3 months of lisinopril 10 mg/d. The urinary Na excretion is 180 mmol/d. Which ONE of the following should be done next?

   a.) Add 50 mg/d losartan  
   b.) Increase lisinopril to 20 mg/d  
   c.) Add 25 mg/d spironolactone  
   d.) Start oral steroids at 1 mg/kg per d  
   e.) Instruct on a low NaCl diet

Answer: e.

7.) A 36-yr-old Afro-Caribbean woman presents with Raynaud’s phenomenon, arthralgias, widely scattered purpuric lesions on the lower extremities, fever, and mild diarrhea. She also has had episodes of clumsiness in the right lower extremity.
She takes no medications. Her physical examination reveals a BP of 140/80 mmHg. Areas of confluent purpura are present over the dorsum of both feet. The plantar reflex is upgoing on the right. Laboratory studies show a serum creatinine of 1.0 mg/dl, and the urinalysis reveals 2+ protein and 2+ blood. The hemoglobin is 10.0 g/dl, the white blood cell count is 4500/mm3, and the platelet count is 18,000/mm3. Schistocytes are present in the peripheral smear. C3 and C4 complements are normal. A FANA is elevated at 1:160. The prothrombin time and activated partial thromboplastin time are normal. Which ONE of the following is MOST likely to explain the underlying cause of her disorder?

a.) Anti-DNA–double-stranded DNA immune complexes deposited in glomeruli and extraglomerular vessels provoking a systemic vasculitis
b.) Antibodies to ADAMTS13 provoking impaired cleavage of von Willebrand factor multimers, platelet microthrombi, and a thrombotic microangiopathy
c.) Antibodies to topo-isomerase-I provoking a sclerodermatous lesion in renal vessels
d.) Peripheral embolic disease from lupus-induced marantic (nonbacterial) endocarditis of the mitral valve
e.) Intestinal infection with E. Coli 0157.H7

Answer: b.

8.) A 49-year-old African-American man presents with an unremarkable history. Six months ago, his serum creatinine was 0.9 mg/dl. He presents with 2+ pitting edema to the knees. A renal biopsy revealed FSGS not otherwise specified. When compared with an identical Caucasian patient, which ONE of the following statements is MORE likely to be true in African Americans?

a.) Response to corticosteroids is better.
b.) Progression to end-stage kidney disease is more rapid
c.) Peak age of onset is older.
d.) APOL-1 mutation is less frequent.

Answer: b.

9.) A homeless man is discovered unconscious in the park and is brought to the emergency department. He reeks of alcohol, is unkempt, and is incoherent. Physical examination shows a BP of 90/50 mmHg, heart rate of 120 bpm, temperature of 39°C, slight scleral icterus and dullness, and bronchial breath sounds over the right lower lung fields. Laboratory data reveal the following: Serum Na 131 mEq/L, K 2.9 mEq/L, Cl 70 mEq/L, CO2 21 mEq/L, blood urea nitrogen 34, creatinine 1.4 mg/dl, glucose 240 mg/dl, serum osmolality 320 mOsm/kg H2O, serum ketones weakly positive, pH 7.53, PaCO2 25 mmHg, PaO2 60 mmHg, and serum albumin 3.8 g/dl. Which ONE of the following choices BEST describes his acid-base disturbance?

a.) Metabolic acidosis
b.) Respiratory alkalosis
c.) Metabolic acidosis and respiratory alkalosis
d.) Metabolic acidosis and metabolic alkalosis
e.) Metabolic acidosis, metabolic alkalosis, and respiratory alkalosis

Answer: e.

10.) A 65-year-old man presents with the chief complaint of progressive weakness over the past several months. He is normotensive, and his physical examination is unremarkable. Laboratory studies reveal the following: Na 135 mmol/L, Cl 105 mmol/L, K 3.0 mmol/L, HCO3 18 mEq/L, creatinine 1.8 mg/dl, BUN 22 mg/dl, glucose 110 mg/dl, PCO2 28 Torr, pH 7.33, hematocrit 25%, white blood cell count 5600/mm3, and platelets 340,000/mm3; urinalysis shows trace protein, 1+ glucose, normal sediment, and 24-h urine protein of 4.8 g. Which ONE of the following is a CHARACTERISTIC of the renal abnormality present in this patient?

a.) Evidence of nephrocalcinosis on kidney ureters-bladder x-ray of the abdomen.
b.) The serum HCO3 concentration will increase after the administration of oral bicarbonate at 80 mEq/d but then decrease to 18 mmol/L after the therapy is discontinued.
c.) Bicarbonate therapy will cause the serum K to decline slightly as a result of a shift into cells.
d.) The urine pH will be persistently alkaline.
e.) The urine anion gap will be negative.

Answer: b.

11.) A 78-year-old Caucasian woman is brought to the emergency department secondary to abdominal pain. During the past 2 months, she has noticed periumbilical pain that is brought on by food ingestion. As a result of worsening pain, the patient began taking acetaminophen 4 g/d for the past week. Medical history is significant for stable two-block claudication and transient ischemic attack. Physical examination reveals the following: Temperature of 38.1°C, pulse 98 bpm, BP of 158/88 mmHg, left-sided carotid bruit, normoactive bowel sounds, abdominal bruit, and pain to deep palpation in the mid-epigastrium without rebound. Admission laboratory studies reveal the following: Na 138 mmol/L, K 4.9 mmol/L, Cl 102 mmol/L, HCO3 7 mEq/L, creatinine 1.4 mg/dl, BUN 30 mg/dl, glucose 126 mg/dl, serum osmolality 295 mOsm/L. Arterial blood gas shows pH of 7.17, PCO2 of 18 Torr, and PO2 of 104 Torr; urinalysis shows pH of 5.5, trace ketones, and negative sediment. The anion gap acidosis in the presence of vascular disease and history consistent with intestinal angina led to a diagnosis of ischemic bowel. The patient was taken to the operating room for an exploratory laparotomy. No evidence of ischemic bowel was found. A lactate level sent earlier came back at 2.8 mEq/L. Which ONE of the following is the MOST likely cause of the metabolic acidosis in this patient?
a.) Pyroglutamic acidosis resulting from the administration of acetaminophen.
b.) D-Lactic acidosis as a result of bacterial overgrowth.
c.) Malignant hyperthermia with secondary lactic acidosis.
d.) Diabetic ketoacidosis.
e.) Salicylate toxicity.

Answer: a.

12.) A 71-year-old woman who has had nocturia for several years is admitted to the hospital secondary to increasing weakness and frequency of urination. She has been well until 2 days ago, when she felt weak and could not climb the stairs to her apartment. She has a history of duodenal ulcer many years ago that responded to intensive antacid therapy. She currently takes calcium carbonate for treatment of osteoarthritis, and she takes bicarbonate of soda for heartburn. She has a 40 pack-year history of smoking. On physical examination, she is frail and oriented only to person. Pulse is 106/min, and BP is 110/80 supine and 90/70 mmHg sitting. The remainder of the examination is normal. Laboratory studies reveal the following: Hematocrit 41, Na 152 mmol/L, K 3.0 mmol/L, Cl 100 mmol/L, HCO3 39 mEq/L, BUN 98 mg/dl, creatinine 7.1 mg/dl, Ca 14.4 mg/dl, phosphate 6.3 mg/dl, serum 1, 25-dihydroxyvitamin D 30 pg/ml (35 to 85 pg/ml), parathyroid hormone 16 pg/ml (30 to 50 pg/ml). Urinalysis shows specific gravity of 1.007, trace protein, Na of 49 mmol/L, creatinine of 70 mg/dl, and urine osmolality of 260 mOsm/kgH2O. Renal ultrasound shows normal-sized kidneys and no hydronephrosis. The clinical and laboratory findings are MOST consistent with which ONE of the following?

a.) Vitamin D intoxication.
b.) Chronic kidney disease as a result of longstanding hypertension.
c.) Multiple myeloma.
d.) Milk-alkali syndrome.
e.) Primary hyperparathyroidism.

Answer: d.

13.) You are treating a 66-year-old man with stable angina with a statin, a b-blocker, a diuretic, and an ACE inhibitor. His BP is 130/82 mmHg and his heart rate is 64 beats/min. He generally feels fine; however, he has started to play golf since his retirement 4 months ago and his knee osteoarthritis is more apparent now. Which ONE of the following treatment recommendations would you suggest for this patient?

a.) Any over-the-counter nonsteroidal anti-inflammatory agent at the doses recommended by the manufacturer should be fine.
b.) Acetaminophen in doses ≤3 g/d is a safe choice.
c.) Celecoxib should be avoided because it increases the LDL cholesterol concentration.
d.) Current data indicate that the choice of pain medication is less important than the effect it has.

e.) He should try to limit analgesic usage to just the times when he plays golf.

Answer: b.

14.) You manage the care of a 55-year-old engineer with a home BP device that has been shown to give reliable readings. He is treated with a diuretic, an ACE inhibitor, a calcium channel blocker, and eplerenone. His home readings for the last 6 months show values (±S/D) of 124±11/73±7 mmHg with >109 readings taken (paired and averaged) at morning and evening time periods. His examination is unremarkable. His in-office BP is 140/88 mmHg. Which ONE of the following statements BEST reflects his high BP control?

a.) The home readings likely best reflect his overall BP control.
b.) The office readings, by virtue of the 10-mmHg difference between office versus ambulatory systolic pressure, are more precise for reflecting BP control.
c.) You need ABPM to estimate the degree of daytime BP control.
d.) You need a urine albumin/creatinine ratio to determine whether the home BP values are truly reflective of overall control.

Answer: a.

15.) A 62-year-old man is referred to you for the evaluation and management of right-sided renal artery stenosis (approximately 75%) that was identified incidentally during a computed tomography (CT) angiogram obtained for the evaluation of claudication. He has a history of coronary artery disease and hypertension. His medications include lisinopril, metoprolol, aspirin, and atorvastatin. On examination, his BP is 126/78 mmHg and his heart rate is 64 beats/min. Other than decreased pedal pulses on the left, his examination is unremarkable. Serum creatinine is 1.1 mg/dl, and was 1.0 mg/dl 1 year ago. A CT scan shows that his kidney size is normal and similar on both sides. Which ONE of the following describes the MOST appropriate course of action at this time?

a.) No change in management. Repeat imaging in 6–12 months.
b.) Lisinopril should be discontinued. Repeat imaging in 6–12 months.
c.) Surgical (open bypass) revascularization is indicated.
d.) Angioplasty with stenting is indicated.
e.) Addition of warfarin is indicated. Repeat imaging in 6–12 months.

Answer: a.

16.) A 48-year-old woman is admitted to the hospital after developing “searing” back pain during renal angioplasty and stenting. Postprocedure imaging confirmed development of an aortic dissection from the site of instrumentation at the origin of
the renal artery. Immediate BP management of this patient would BEST be achieved by which ONE of the following?

a.) Intravenous nicardipine  
b.) Transdermal clonidine  
c.) Oral minoxidil  
d.) Intravenous labetalol

**Answer:** d.

17.) A 63-year-old man with treatment-resistant hypertension has high-grade stenosis of both main renal arteries on magnetic resonance imaging. His medications include ramipril, amlodipine, and furosemide. His serum creatinine level is 1.8 mg/dl. Which ONE of the following BEST describes the likely outcome of stenting the renal arteries?

a.) Survival will be improved.  
b.) Responsiveness to antihypertensive therapy will be improved.  
c.) GFR will be improved.  
d.) The resistive index of both kidneys will be reduced.

**Answer:** b.

**HEMATOLOGY QUESTIONS**

1.) All are true in anemia except:

a.) Ferritin may be normal or elevated in true iron deficiency if there is coexistent inflammation  
b.) Nearly all patients who have gastric bypass for weight loss will eventually require IV iron replacement.  
c.) Patients who have Thalassemia should never take iron.  
d.) Anemia of chronic disease is a diagnosis of exclusion.  
e.) A senior who’s hemoglobin is < 13 should be considered anemic and deserves work-up.

**Answer:** c.

2.) All the following are false in thrombocytopenia except:

a.) Low molecular weight heparin and fondaparinux never cause HIT.  
b.) The diagnosis of DIC can be made with a concomitant decline in platelet count and fibrinogen level.  
c.) The diagnosis of TTP requires a bone marrow biopsy.
d.) A platelet transfusion is always needed when the platelet count declines below 20,000.
e.) Platelets are never transfused in a patient with a normal platelet count.

Answer: b.

3.) **In thrombosis and hemostasis, all the following are true except:**

   a.) The most common cause of spontaneous bleeding after the age of 50 is a Factor VIII inhibitor.
   b.) The diagnosis of mild vonWillebrand’s disease can be difficult as factor levels are frequently normal.
   c.) Warfarin should be started day 1 of treatment for DVT/PE
d.) Patients who develop spontaneous thrombosis before age 50 should undergo a hypercoaguable work-up.
e.) Myocardial infarction or stroke at a young age is not considered a reason to obtain a hypercoaguable work-up.

Answer: e.

4.) **The biology of tumor growth most commonly follows which of the following mechanisms?**

   a.) Logarithmic progression.
   b.) Logarithmic regression.
   c.) Gompertzian kinetics.
   d.) Michaelis-Mendelson kinematics.
e.) Orwellian statistical realization models.

Answer: c.

5.) **Vinyl chloride exposure is most commonly associated with which malignancy?**

   a.) Mantle cell lymphoma.
   b.) Anaplastic astrocytoma.
   c.) Renal cell carcinoma.
d.) Urothelial carcinoma of the bladder.
e.) Hepatic angiosarcoma.

Answer: e.

6.) **Which of the following is considered a non-modifiable risk factor for cancer development?**

   a.) Obesity.
b.) Smoking cessation.
c.) Use of sunscreens.
d.) Genetic instability.
e.) Occupational safety.

Answer: d.

7.) In Leukemia, all are true except:

a.) WBC is always elevated at the time of diagnosis of acute leukemia
b.) The diagnosis of CLL is usually made on routine lab work rather than symptoms
c.) It is common for CML to present with unusual infections
d.) The Philadelphia chromosome may not always be present in CML
e.) The molecular hallmark of CML is BCR/ABL

Answer: a.

8.) All are false in lymphoma except:

a.) The diagnosis of lymphoma is easily made by FNA
b.) B symptoms are a good prognostic feature
c.) Reed-Sternberg cells are the classic cells of Hodgkin lymphoma
d.) The combination of chemotherapy and radiation therapy rarely increases the risk of secondary malignancies
e.) All lymphomas require treatment

Answer: c.

9.) All are true except:

a.) Serum M protein is always elevated in myeloma at diagnosis
b.) Bence Jones proteins are not always present in 24 hour urine in myeloma
c.) A bone scan is not usually helpful in diagnosing boney lesions of myeloma
d.) Erythropoietin alone is usually the first treatment of choice in MDS
e.) Not all genetic changes in MDS indicate a poor prognosis

Answer: a.

10.) Which of the following is not known to predispose to the risk of developing transitional cell carcinoma of the bladder?

a.) Smoking.
b.) Paint and leather industrial workers.
c.) Textile workers.
d.) Past infection with Schistosoma hematobium.
e.) Workers in tire and rubber plants.
Answer: d.

11.) Which of the following measures improve the utility of serum prostate-specific antigen (PSA) in screening for prostate cancer?

a.) Digital rectal examination.
b.) PSA velocity.
c.) Measurement of free vs bound PSA.
d.) Needle biopsy of suspicious masses.
e.) All of the above.

Answer: e.

12.) Which of the following would be the most appropriate treatment for a 32 year-old, otherwise healthy, male with a newly diagnosed AJCC Stage IIB non-seminomatus germ cell tumor?

a.) Retroperitoneal radiation only.
b.) Chemotherapy only.
c.) Radical orchiectomy with either retroperitoneal lymph node dissection and/or chemotherapy.
d.) Radical orchiectomy followed by observation.
e.) Radical orchiectomy followed by autologous stem cell transplantation.

Answer: c.

13.) For which of the following circumstances would anastrozole be best indicated?

a.) A 25 year-old woman with a 2 cm, lymph node negative, ER- tumor
b.) A 37 year-old woman with a 0.2 cm, lymph node negative ER+ tumor.
c.) A 30 year-old pregnant woman with a 3 cm, lymph node positive, ER+ tumor.
d.) A 69 year-old woman with a 3 cm, lymph node negative, ER+ tumor.
e.) A 31 year-old woman with a 2.8 cm, lymph node positive, ER+, Her2+ tumor.

Answer: d.

14.) Which of the following does not increase the risk of developing endometrial carcinoma?

a.) Obesity.
b.) Unopposed estrogenic stimulation.
c.) Anovulation.
d.) Li Fraumeni syndrome.
e.) Veganism.
15.) Which of the following is not associated with an increased risk for developing epithelial ovarian carcinoma?

   a.) Late menopause.
   b.) Nulliparity.
   c.) Age less than 30 at first pregnancy.
   d.) Oral contraceptives.
   e.) Lynch syndrome.

Answer: d.

16.) In the patient with cancer, which of the following are correct regarding fever?

   a.) It is usually attributable to underlying infection.
   b.) The type of infection may be unusual due to cancer-related debility or granulocytopenia from treatment.
   c.) Infection by endogenous organisms may be causative.
   d.) Occasionally, be attributed to a cause intrinsic to the neoplasm itself.
   e.) All of the above are correct.

Answer: e.

17.) Which of the following mechanisms best explains how antimetabolites work in cancer treatment?

   a.) Inhibition of DNA transcription by direct binding and cross-strand breakage.
   b.) Inhibition of topoisomerases.
   c.) Inhibition of tyrosine kinases.
   d.) Compete with normal precursors for the catalytic site of key enzymes or substitute for metabolites that are incorporated into DNA or RNA.
   e.) Intercalation with DNA causing disruption of transcription.

Answer: d.

18.) A 54 year-old man with rectal carcinoma is receiving 5-FU by continuous infusion along with preoperative radiation. He presents with painfully swollen hands and feet, and blistering is noted. The most appropriate treatment for this patient is:

   a.) Reassurance.
   b.) Hold treatment and manage supportively until improved.
   c.) Discontinue treatment.
   d.) Topical steroid creams.
   e.) Topical antimicrobial ointments and oral cephalexin.
Answer: b.