ITE 2018
A Platinum Opportunity
Neuro/Psych/Hematology/Derm/Admin
Questions

• 29 Neuro
• 12 Heme
• 7 Derm
• 6 Psych
• 4 Admin
• 57 total
1. Neurology

- All of the following structures are supplied by the posterior circulation **except:**
  a) Brainstem
  b) Optic nerve and retina
  c) Cerebellum
  d) Thalamus
2. Neurology

• A 65 yo patient presents with vertigo, nausea and vomiting. On exam, he is noted to have lateralizing dysmetria and is unable to stand erect or ambulated without assistance. No other deficits are noted. The most likely diagnosis is:

a) Lacunar infarct
b) Vertebrobasilar artery occlusion
c) Middle cerebral artery occlusion
d) Cerebellar infarct
3. Neurology

• Myopathies may be characterized by all of the following except:
  a) Intact DTR
  b) Diffuse or proximal weakness
  c) Elevated WBC count, sedimentation rate and muscle enzymes
  d) Profound sensory symptoms
4. Neurology

- Acute periodic paralysis generally occurs in males 7-21 years old and is associated with:
  a) Hypokalemia
  b) Normokalemia
  c) Hyperkalemia
  d) Hypocalcemia
5. Neurology

• Which of the following syndromes generally occurs in association with malignancy?
  a) Guillain-Barre’
  b) Eaton-Lambert
  c) Myasthenia Gravis
  d) Polymyositis
6. Neurology

• All of the following statements regarding myasthenia gravis are accurate except:

a) The underlying problem is functional excess of acetylcholine.

b) Patients can present with muscle weakness and respiratory compromise.

c) Administration of edrophonium would be expected to promote clinical improvement.

d) It typically occurs in undiagnosed/untreated patients and those with acute exacerbation of their disease process.
7. Neurology

• In which of the following conditions is the use of succinylcholine contraindicated?
  a) Acute crush injury
  b) Acute spinal cord injury
  c) History of neuroleptic malignant hyperthermia
  d) Myasthenia gravis
8. Neurology

• The most common intracranial bleed associated with closed head trauma is:
  
a) Subarachnoid  
b) Subdural  
c) Epidural  
d) Intraparenchymal
9. Neurology

- Epidural hematomas frequently occur in association with skull fractures that traverse the groove of the:
  a) Middle meningeal artery
  b) Middle cerebral artery
  c) Anterior cerebral artery
  d) Anterior meningeal artery
10. Neurology

• All of the following signs and symptoms are associated with peripheral vertigo **except:**

a) Presence of hearing loss and tinnitus
b) Vertical nystagmus
c) Spontaneous nystagmus that is suppressed by visual fixation
d) Absence of associated neurologic abnormalities
11. Neurology

• All of the following statements regarding subarachnoid hemorrhage are accurate **except**:  
  
a) The sensitivity of CT scanning in detecting SAH is about 80-95%  
b) ECG changes that resemble those produced by cardiac ischemia can occur.  
c) Lumbar puncture is the initial procedure of choice for detecting SAH.  
d) Patients that present with the worst headache of their lives, are confused and may have other nonfocal neurologic signs.
12. Neurology

- A 35- yo man presents with a severe boring unilateral headache that woke him from sleep. He had the same type of headache the night before. On exam he is noted to have lacrimation, flushing and rhinorrhea on the affected side. His neurological examination is otherwise normal. The most effective acute therapy for this man is:
  a) Cyclic antidepressants
  b) Calcium channel blockers
  c) 100% oxygen
  d) Lithium carbonate
13. Neurology

• All of the following statements regarding botulism are accurate **except**:

  a) Symptoms usually develop within 24-48 hours of ingestion of improperly preserved foods that are contaminated with botulinum toxin.

  b) The earliest and most reliable symptoms are dry mouth, dysphagia and dysarthria.

  c) The toxin produces symptoms by preventing the release of acetylcholine from nerve endings.

  d) The usual cause of death is respiratory paralysis.
14. Neurology

• Which of the following statements regarding trigeminal neuralgia are not accurate?

a) Patients present with lancinating pain in the distribution of one or more divisions of the trigeminal nerve.

b) The first division of the trigeminal nerve is most commonly affected.

c) Tapping over “trigger points” along the distribution of the trigeminal nerve can precipitate an attack.

d) Long-term medical therapy is with carbamazepine. Phenytoin is another alternative.
15. Neurology

• In evaluating the trauma patient, you observe that his best verbal response is inappropriate words, his best motor response is withdrawal from a painful stimulus and that he will only open his eyes in response to a painful stimulus. This patient’s score on the Glasgow Coma Score is:

  a) 7
  b) 8
  c) 9
  d) 10
16. Neurology

As part of your neurological assessment of a comatose patient, you check the oculovestibular reflex. In response to irrigation of the patient’s left ear with ice water, there is slow tonic eye deviation to the left. This signifies that:

a) Both the brainstem and cerebral cortex are intact.

b) The brainstem is intact.

c) Brainstem dysfunction is present

d) None of the above
17. Neurology

- Which of the following C-spine/incomplete cord lesions occur by a mechanism other than flexion?
  a) Central cord syndrome
  b) Anterior cord syndrome
  c) Bilateral facet dislocation
  d) Clay-shoveler’s fracture
18. Neurology

• A 45 yo male presents after outpatient MRI reveals cauda equine syndrome. Which of the following additional findings is most likely present?
  a) Decreased deep tendon reflexes
  b) Distal motor weakness and greater than proximal motor weakness
  c) Saddle anesthesia
  d) Urinary retention
A 45 yo male presents with persistent seizure activity. The paramedics report that he has exhibited tonic-clonic movements for the past 35 minutes. Which of the following features is characteristic of this patient’s condition?

a) Increased incidence in persons 25-50 years old
b) Ongoing seizure activity that persists after tonic-clonic movements end.

c) Seizure activity that is easily controlled with one agent.

d) Seizure activity that recurs after the patient returns to baseline mental status.
20. Neurology

- A 42 yo male with no cardiac risk factors presents with vertigo. History and physical examination findings suggest a central rather than a peripheral cause include:
  a) Associated unilateral hearing loss
  b) Difficulty with rapid alternating movements
  c) Sudden onset of severe symptoms with vomiting
  d) Symptom reduction following repeated Dix-Hallpike testing
21. Neurology

- The most common form of migraine headache is:
  a) Basilar-type migraine
  b) Hemiplegic migraine
  c) Migraine without aura
  d) Ophthalmoplegic migraine
A 64 yo male presents with low back pain. He denies trauma, or incontinence of any type. It is worse after walking long periods of time. On examination he walks in a flexed position, + straight leg raise B/L, normal rectal tone and no neurological deficits. What is the most likely diagnosis?

a) Ankylosing spondylitis
b) Malignancy
c) Peripheral vascular disease
d) Spinal stenosis
23. Neurology

• Which of the following patients requires emergent head CT?
  a) A 23 yo female with gradual onset, throbbing, bilateral frontal headache
  b) A 28 yo female who is 28 weeks gestation with HTN, severe headache and blurry vision
  c) A 65 yo female with a new onset seizure but no focal deficits
  d) A 79 year old female with near syncope and an old right hemiparesis
24. Neurology

- A 32 yo male with DM, presents with headache and left eye pain. The headache is sharp, left midface and progressively worse over 2 days. He underwent a root canal 4 days ago for a dental abscess. Which of the following findings would be most consistent with a serious intracranial complication of a dental abscess?
  a) Decreased vision in the left eye with an afferent pupillary defect
  b) Lateral gaze palsy in left eye
  c) Left sided facial paresis
  d) Left sided ptosis, miosis and loss of sweating
25. Neurology

• An obese young woman presents with a 1 month history of vomiting and dull headaches that are typically worse in the morning. Urinary pregnancy is negative. Which of the following studies is likely to be diagnostic?

a) Abdominal CT scan
b) Abdominal series
c) Lumbar puncture
d) Pelvic US
A 3 yo male with a h/o Chiari malformation and VP shunt placement is brought by his mother because he has intermittent headaches, vomiting, and abdominal pain for 4 days. His siblings have recently been ill with influenza A. On examination, the child is irritable. He is afebrile and has no signs of infection around the catheter. The catheter is easily compressible and refills < 3 seconds. What are the appropriate next steps?

a) Order a head CT, shunt series, and shunt tap
b) Treat with acetazolamide to decrease CSF production
c) Treat with antiemetics and rehydration and attempt to feed
d) Treat with oseltamavir and discharge with instructions to F/U with PCP
27. Neurology

• Which of the following patients is IV TPA for ischemic stroke the appropriate next step?
  a) 45 yo male with a h/o cirrhosis, symptoms onset 120 minutes ago; platelet count 75,000/mcL, BP 175/90, NIH stroke score 24, head CT negative
  b) 45 yo female with sudden onset headache with seizure, symptoms onset 90 minutes earlier; BP 160/90, NIH stroke scale 18, head CT negative
  c) 60 yo male with a h/o HTN, on atenolol, symptom onset 60 minutes ago; BP 210/70, NIH stroke scale 14, head CT negative
  d) 60 yo female with a h/o brain tumor resection 6 months earlier, symptoms onset 90 minutes ago; BP 175/90, NIH stroke scale 18, head CT negative
28. Neurology

• Which of the following statements regarding LP results in SAH is correct?
  a) A 30% decrease in the RBC count from tube 1-4 suggests SAH
  b) A traumatic tap consistently produces more RBCs in the CSF than a SAH does
  c) An RBC count > 10,000/ mcL is consistent with a radiographically detectable SAH
  d) CSF examination 1 hour after the event reliably shows xanthochromia
29. Neurology

- A 45 yo male presents with severe neck pain after falling onto his head from a scaffold. He is breathing spontaneously. He has sensation to the level of his clavicle, including the arms to his thumbs, but not below it. He can shrug his shoulders, but cannot flex at the elbows or move his arms or legs. If this is a complete neurologic lesion, at what level is this spinal chord injury?
  a) C3
  b) C5
  c) C6
  d) C8
30. Hematology

Which of the following is the defining triad of hemolytic uremic syndrome?

a) Abdominal distension, headache, HTN
b) Abdominal pain, purpura, swollen joints
c) Anemia, high creatinine, low platelets
d) Cyanosis, low back pain, vomiting
A 33 yo Asian female presents with fatigue and shortness of breath. She recently started nitrofurantoin for UTI. Laboratory testing reveals microcytic, hypochromic anemia. She has a history of anemia. Which of the following is the likely diagnosis?

a) G6PD deficiency
b) Iron deficiency
c) Sickle cell disease
d) Thalassemia
32. Hematology

• A 6 year old boy is brought by his father 1 hour after sustaining a head injury. He fell off his bicycle and not wearing a helmet. PMH: Hemophilia A. Which of the following is the first step in management?

a) Blood transfusion using O negative whole blood
b) CT
c) Factor VIII therapy to 100% activity
d) Factor IX therapy to 50% activity
A 35 yo male with hemophilia A presents with right shoulder pain. He says he might be bleeding in his shoulder. He weighs 80 kg. How much factor must be used to reach 40% activity?

a) 400 U  
b) 600 U  
c) 800 U  
d) 1,600 U
A 26 yo female with a history of sickle cell disease presents with pain in her legs. Laboratory testing reveals the following: WBC 10,000/mcL; Hgb 4 g/dL; reticulocyte count, 0.5%. Which of the following treatments has been proved to be helpful for this condition?

a) Antibiotic therapy  
b) Exchange transfusion  
c) Oxygen administration  
d) Transfusion of PRBCs
A 34 yo woman with a h/o leukemia presents with bleeding gums, increased menses and bruising easier. Lab testing reveals Hgb 10 mg/dL, platelets 20,000/mcL; PT 17 seconds; PTT 30 seconds; and elevated d-dimer. Which is the most likely diagnosis?

a) Blast crisis
b) Disseminated intravascular coagulation
c) Liver cirrhosis
d) Primary fibrinolysis
36. Hematology

• All of the following tests are normal in hemophilia A except:
  a) Platelet function studies
  b) PT
  c) PTT
  d) Platelet count
37. Hematology

- Which of the following statements regarding von Willebrand’s disease is accurate?

  a) The treatment of choice for all types is cryoprecipitate
  b) Deficiencies in factors VIII:vWF, VIII:C, and VIII:vWF antigen are characteristic.
  c) Mucocutaneous bleeding predominates and bleeding episodes are generally milder than with hemophilia.
  d) It is an autosomal dominant disorder that affects both males and females.
38. Hematology

• For the patient that is on warfarin therapy and is actively bleeding, or requires emergent surgery, the specific blood product that should be ordered is:

  a) Packed RBC’s
  b) Cryopercipitate
  c) Factor concentrates
  d) Fresh frozen plasma
39. Hematology

- Expected lab findings on routine screening of a patient with sickle cell disease would include all of the following except:
  
  a) Decreased hemoglobin  
  b) Increased reticulocyte count  
  c) Normal platelet count  
  d) Increased WBC count
40. Hematology

• In which of the following conditions is the patient most likely to have a normal platelet count?
  a) Disseminated intravascular coagulation
  b) Excessive hemorrhage
  c) Hemolytic uremic syndrome
  d) Von Willenbrand disease
41. Dermatology

- All of the following regarding allergic contact dermatitis due to toxicodendrons are accurate except:
  a) The development of a reaction requires prior sensitization (days or years earlier).
  b) The rash usually appears 5-21 days after a first-time exposure and is characterized by erythema and itching that may be associated with papules, vesicles or bullae.
  c) The rash can spread if vesicles are ruptured and the blister fluid contaminates unaffected skin.
  d) Treatment of moderate-severe dermatitis may include all of the following modalities: aluminum acetate compresses, Aveeno baths, oral antihistamines and systemic corticosteroids.
42. Dermatology

• The presence of a blanching erythematous rash resembling a sunburn that subsequently fades and is followed by a full-thickness desquamation of the skin (especially on the palms and soles) is classic of:

a) Exfoliative dermatitis
b) Toxic shock syndrome
c) Staphylococcus scalded skin syndrome
d) Erysipelas
A 6 year old child is brought in for an evaluation of a maculopapular rash. According to the mother the rash started on the face and spread rapidly to the trunk and extremities. The rash was preceded by a prodrome of high fever, cough, runny nose and conjunctivitis. The most likely diagnosis is:

a) Roseola
b) Rubeola
c) Rubella
d) Varicella
44. Dermatology

Which of the following is correct about the rash depicted?

a) Combination of oral and topical antibiotic therapy is routinely necessary
b) Gram stain of the lesion is unlikely to demonstrate bacteria
c) Topical antibiotic therapy alone is the standard treatment
d) Topical povidone-iodine application should be part of routine management
45. Dermatology

• A 48 yo male presents with the rash depicted. He has been taking trimethoprim-sulfamethoxazole for a prostate infection but is otherwise healthy. BP 130/70 mm Hg, pulse 108 bpm, RR 14 rpm, T 38°C. Following fluid administration, what is the most appropriate disposition?

a) Admit to burn ICU
b) Discharge with an oral steroid taper and outpatient dermatology appointment
c) Discharge with strict return precautions
d) Start IV steroids and admit to a floor bed
46. Dermatology

- A 30 yo female presents with partial thickness burns on her entire back and posterior aspects of both arms after her shirt caught on fire. She is 65 kg. By the Parkland formula, how much crystalloid is required in the first 24 hours?

a) 2,340 mL
b) 4,680 mL
c) 7,020 mL
d) 9,360 mL
47. Dermatology

• Which of the following pairings of skin lesion and morphology is correct?
  a) Bulla – fluid filled circumscribed lesion < 0.5 cm diameter 
  b) Macule – Palpable circumscribed area of skin color change 
  c) Purpura – any skin eruption resulting from extravastated blood 
  d) Wheel – flakes of stratum corneum
A 16 yo female presents with fatigue and vague abdominal pain. Exam is notable for thin appearance, bradycardia, decreased enamel on teeth, calluses on dorsal side of right hand. The ECG is as shown. What is the most likely diagnosis?

a) Advanced AIDS
b) Eating disorder
c) Hyperthyroidism
d) Psychotic disorder
49. Psychiatry

• All of the following are effective in the treatment of panic disorder except:
  a) Traditional psychotherapy
  b) High-potency benzodiazepines
  c) Specialized cognitive-behavioral therapy
  d) Tricyclic antidepressants, fluoxetine, and MAOIs
The most effective drug for the treatment of a hypertensive crisis that occurs with in association with an MAOI when a tyramine-containing food is ingested is:

a) A beta blocker
b) Phentolamine
c) Thorazine
d) Nitroprusside
51. Psychiatry

• Which of the following pre-existing psychiatric disorders is **not** considered a risk factor for suicide?

a) Schizophrenia  
b) Pain disorder  
c) Alcoholism  
d) None of the above
52. Psychiatry

• The neuroleptic agent of choice for use in the Emergency Department is:
  
  a) Trifluoperazine
  b) Thioridazine
  c) Chlorpromazine
  d) Haloperidol
53. Psychiatry

• Which of the following findings is least characteristic of the profile of a patient with an organic illness?

a) Visual hallucinations
b) Impaired cognition and memory loss
c) Disorientation and altered level of consciousness
d) The patient believes his behavior is normal
54. Administration

• In planning for an Emergency Department and patient flow to inpatient units, the average ED will admit what percentage of patients?

  a) 16%
  b) 30%
  c) 50%
  d) 66%
55. Administration

• In order to be compliant with the Joint Commission, all hospitals must have a written disaster plan and conduct disaster drills.
  
a) One time per year
b) Two times per year
c) Three times per year
d) Disaster drills are recommended but are not required as they are disruptive to normal hospital operations.
56. Administration

- The state Department of Health mandates reporting all of the following except:
  a) Cases of sexually transmitted disease
  b) Victims of gunshot and stab wounds
  c) Births that occur in the Emergency Department
  d) Victims of child or sexual abuse
57. Administration

• On average, what percentage of hospital admission come from the Emergency Department?
  a) 30%
  b) 50%
  c) 66%
  d) 80%
Stop.
Put down your pencil.
1. Neurology

• All of the following structures are supplied by the posterior circulation **except:**
  a) Brainstem
  b) Optic nerve and retina
  c) Cerebellum
  d) Thalamus
1. Neurology

- All of the following structures are supplied by the posterior circulation except:
  a) Brainstem
  b) Optic nerve and retina
  c) Cerebellum
  d) Thalamus
Posterior circulation

Contralateral homonymous hemianopsia, hemiparesis, hemisensory loss, ipsilateral CN III loss (pupil sparing)
CN 3,4,6 Oculomotor, Trochlear, Abducens Nerve

Extraocular movements

3rd nerve palsy
Complete ptosis
Eye down and out
Dilated pupil which is not responsive to light and accommodation.

4th nerve palsy
Double vision going down stairs or reading books
Ask patient to turn the eye in and then to look down - may cause vertical hypertropia (pic)

6th nerve palsy
Failure of lateral movement
Nystagmus.

Lesions

Nystagmus
The direction of nystagmus is defined as that of the fast [correcting] movement
Vestibular lesion – nystagmus away from the side of the lesion
Cerebellar lesion – nystagmus to the side of the lesion

Internuclear ophthalmoplegia
Abducting eye has greater nystagmus than the adducting eye. Problems btw nuclear, 3rd n 6th connected by medial longitudinal fasciculus (MLF) - MS
- **Posterior Inferior Cerebellar Artery (PICA in blue)**
  The PICA territory is on the inferior occipital surface of the cerebellum and is in equilibrium with the territory of the AICA, in purple, which is on the lateral side of thetonsillar fossa. The larger the PICA territory, the smaller the ACA and vice versa.

- **Superior Cerebellar Artery (SCA in grey)**
  The SCA territory is in the superior and tentorial surface of the cerebellum.

- **Branches from vertebral and basilar arteries**
  These branches supply the medulla oblongata (in blue) and the pons (in green).

- **Anterior Choroidal artery (ACHA in blue)**
  The territory of the ACHA is part of the hippocampus, the posterior limb of the internal capsule and extends upwards to an area lateral to the posterior part of the caudate and anterior inferior internal capsule.

- **Lenticulo-striate arteries**
  The lateral LSA’s (in orange) are deep penetrating arteries of the middle cerebral artery (MCA).
  Their territory includes most of the basal ganglia.
  The medial LSA’s (Indicated in dark red) arise from the anterior cerebral artery (usually the A1-segment).
  Heubner’s artery is the largest of the medial lenticonulostriate arteries and supplies the anteromedial part of the head of the caudate and anteroinferior internal capsule.

- **Anterior cerebral artery (ACA in red)**
  The ACA supplies the medial part of the frontal and the parietal lobe and the anterior portion of the corpus callosum, basal ganglia and internal capsule.

- **Middle cerebral artery (MCA in yellow)**
  The cortical branches of the MCA supply the lateral surface of the hemisphere, except for the medial part of the frontal and the parietal lobe (anterior cerebral artery), and the inferior part of the temporal lobe (posterior cerebral artery).
  The deep penetrating LSA-branches are discussed above.

- **Posterior cerebral artery (PCA in green)**
  P1 extends from origin of the PCA to the posterior communicating artery, contributing to the circle of Willis.
  Posterior thalamoperforating arteries branch off the P1 segment and supply blood to the midbrain and thalamus.
  Cortical branches of the PCA supply the inferolateral part of the temporal lobe, occipital pole, visual cortex, and splenium of the corpus callosum.
Neurology

• Cerebral circulation

• Middle cerebral artery presentation
  • Contralateral hemiparesis and sensory loss, facial weakness and aphasia
  • Homonymous hemianopsia
  • Nondominant side may have inattention, neglect and apraxia
Neurology

• Anterior cerebral artery presentation
  • Contralateral leg weakness and numbness, less arm weakness
  • Abulia
  • Incontinence
  • Apraxia
  • Anosmia
  • Grasp reflex
  • Sucking reflex
Neurology

- Basilar artery stroke
  - Infarct in pons causes quadriplegia, locked in
Other stroke syndromes

• Wallenberg syndrome
  • Occlusion proximal vertebral artery in lateral medulla
  • Vertigo
  • Dysphagia
  • Horner’s syndrome
  • Facial numbness
  • Ipsilateral weakness
  • Contralateral loss of pain/temperature of limb

PICA Occlusion
(Lateral Medullary syndrome Of Wallenberg)

• The commonest of brainstem strokes!

• Manifestation: At the level of dorso-lateral medulla & Cerebellum
  • Ipsilateral Sensory loss of face - pain and
  • Temperature
  • Ipsilateral Facial pain
  • Ipsilateral Ataxia - arm and leg
  • Ipsilateral cerebellum
  • Ipsilateral Gait ataxia
  • cerebellum
  • Ipsilateral Nystagmus
  • Ipsilateral Nausea / vomiting
  • Ipsilateral Vertigo
  • Ipsilateral Horness
  • Ipsilateral Dysphagia
  • Ipsilateral Horner syndrome-Descending sympathetic
  • **Contralateral** Hemisensory loss - pain and
  • Temperature
  • Hiccups, (whatever you do, it does not go !!!!)

Prognosis is generally quite good with full or near full recovery expected at 6 months.
Other stroke syndromes

- Vertebral basilar
  - Cerebellar
    - Vertigo
    - Ataxia
    - Nausea, vomiting
    - Vertical or bidirectional nystagmus
    - Ipsilateral dysmetria
    - Dysdiadokinesia
  - Deficits both sides of body
    - Pain and temperature deficits on one side of the face and opposite on body
    - Ipsilateral CN palsies
    - Contralateral hemiparesis
    - Contralateral sensory deficits
Other stroke syndromes

• Lacunar infarcts
  • HTN
  • Deep arteries of internal capsule effecting anterior and posterior vessels
• 4 states
  1. Pure motor hemiplegia (pons, or internal capsule, most common)
  2. Leg paresis and ataxia (pons, internal capsule)
  3. Dysarthria - clumsy hand (midpons)
  4. Pure sensory syndrome (thalamus)
Other stroke syndromes

• Transient global amnesia
  • Ischemia to temporal lobes or thalamus
  • Men > 60, lasts 30 minutes-36 hours
  • Sudden loss of recent memory
  • Preservation of long term memory
  • No motor, sensory or speech deficits
  • Can carry out complex tasks
Types of ischemic stroke

Embolic
- Ischemic brain
- Embolus blocking flow

Lacunar
- Ischemic brain
- Plaque blocking flow

Atherothrombotic
- Plaque
- Thrombus blocking flow

Cerebral arteries

Common carotid artery

Internal carotid artery
Neurology – Subdural and epidural hematomas

**Epidural Hematoma**  
(Does Not Cross Suture Line)

- Arterial Blood
- Skull Fracture
- Middle Meningeal Artery

**Subdural Hematoma**  
(Crosses Suture Line)

- Venous Blood
- Dura

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**Classic Radiographic Findings**

- **Epidural Hematoma**
  - Middle Meningeal Artery

- **Subdural Hematoma**
  - Bridging Veins

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Author unknown, [http://rad.ushb.md/medpic/achy_pircmmplzcp099.jpg](http://rad.ushb.md/medpic/achy_pircmmplzcp099.jpg)

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Author unknown, [http://rad.ushb.md/medpic/hcrp_chvmpnplp119.jpg](http://rad.ushb.md/medpic/hcrp_chvmpnplp119.jpg)
Hypertensive Intracerebral Hemorrhage

• Putamen – like middle cerebral infarct
  • Contralateral hemiplegia, hemianesthesia, homonymous hemianopsia, aphasia
  • Different from middle cerebral infarct because CNS depressed

• Cerebellar hemorrhage
  • Sudden onset of ataxia, vertigo, occipital headache, vomiting, unable to stand

• Thalamic hemorrhage
  • Contralateral hemiplegia and hemianesthesia, Sensory > Motor
  • Restricted upward gaze
  • CNS depression

• Pontine hemorrhage
  • Occipital headache-coma, decerebrate, pinpoint pupils, absence of oculovestibular reflex
Intracranial Hemorrhage

Cerebellum

- Superior cerebellar peduncle
- Middle cerebellar peduncle
- Inferior cerebellar peduncle
- Medulla
- Posterior inferior cerebellar artery (PICA)
- Anterior inferior cerebellar artery (AICA)
- Vertebral artery
- Basilar artery
- Pons
- Midbrain
- Superior cerebellar artery (SCA)

Putamen
Intracranial hemorrhage - Thalamic

Reason for upward gaze problem
Intracranial hemorrhage - Pons
2. Neurology

• A 65 yo patient presents with vertigo, nausea and vomiting. On exam, he is noted to have lateralizing dysmetria and is unable to stand erect or ambulated without assistance. No other deficits are noted. The most likely diagnosis is:

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Neurology

• Cerebellar infarct
  • Ataxia
  • Vertigo
  • Nausea/vomiting
  • Nystagmus vertical or bidirectional
  • Lateralizing dysmetria
  • Dysdiadokinesia
3. Neurology

- Myopathies may be characterized by all of the following **except**:  
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  c) Elevated WBC count, sedimentation rate and muscle enzymes  
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4. Neurology

- Acute periodic paralysis generally occurs in males 7-21 years old and is associated with:
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  b) Normokalemia
  c) Hyperkalemia
  d) Hypocalcemia
4. Neurology

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  b) Normokalemia
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  d) Hypocalcemia
5. Neurology

• Which of the following syndromes generally occurs in association with malignancy?
  a) Guillain-Barre’
  b) Eaton-Lambert
  c) Myasthenia Gravis
  d) Polymyositis
5. Neurology

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a) Guillain-Barre’
  
b) Eaton-Lambert
  
c) Myasthenia Gravis
  
d) Polymyositis
6. Neurology

• All of the following statements regarding myasthenia gravis are accurate except:

a) The underlying problem is functional excess of acetylcholine.

b) Patients can present with muscle weakness and respiratory compromise.

c) Administration of edrophonium would be expected to promote clinical improvement.

d) It typically occurs in undiagnosed/untreated patients and those with acute exacerbation of their disease process.
6. Neurology

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Neurology

BLOCKING AUTO-ANTIBODIES (Myasthenia gravis)

Nerve

Acetylcholine

AChR

Muscle cell

Muscle activation

Muscle activation inhibited

Auto-antibody to AChR
7. Neurology

• In which of the following conditions is the use of succinylcholine contraindicated?
  a) Acute crush injury
  b) Acute spinal cord injury
  c) History of neuroleptic malignant hyperthermia
  d) Myasthenia gravis
7. Neurology

• In which of the following conditions is the use of succinylcholine contraindicated?
  a) Acute crush injury
  b) Acute spinal cord injury
  c) History of neuroleptic malignant hyperthermia
  d) Myasthenia gravis
8. Neurology

• The most common intracranial bleed associated with closed head trauma is:
  a) Subarachnoid
  b) Subdural
  c) Epidural
  d) Intraparenchymal
8. Neurology

- The most common intracranial bleed associated with closed head trauma is:
  a) Subarachnoid
  b) Subdural
  c) Epidural
  d) Intraparenchymal
9. Neurology

- Epidural hematomas frequently occur in association with skull fractures that traverse the groove of the:
  a) Middle meningeal artery
  b) Middle cerebral artery
  c) Anterior cerebral artery
  d) Anterior meningeal artery
9. Neurology

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b) Middle cerebral artery
  
c) Anterior cerebral artery
  
d) Anterior meningeal artery
10. Neurology

• All of the following signs and symptoms are associated with peripheral vertigo except:

a) Presence of hearing loss and tinnitus
b) Vertical nystagmus
c) Spontaneous nystagmus that is suppressed by visual fixation
d) Absence of associated neurologic abnormalities
10. Neurology

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a) Presence of hearing loss and tinnitus

b) **Vertical nystagmus**

c) Spontaneous nystagmus that is suppressed by visual fixation

d) Absence of associated neurologic abnormalities
Neurology

• Dix-Hallpike test
  • Sit up with legs extended and lay down with assistance and head turned 45°, with 20° extension
  • Observe for 45 seconds, latency may be for (5-10 seconds). Nystagmus or fast phase back to midline with fatigability = peripheral cause
Neurology

- Epley maneuver
11. Neurology

• All of the following statements regarding subarachnoid hemorrhage are accurate **except:**

a) The sensitivity of CT scanning in detecting SAH is about 80-95%

b) ECG changes that resemble those produced by cardiac ischemia can occur.

c) Lumbar puncture is the initial procedure of choice for detecting SAH.

d) Patients that present with the worst headache of their lives, are confused and may have other nonfocal neurologic signs.
11. Neurology

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d) Patients that present with the worst headache of their lives, are confused and may have other nonfocal neurologic signs.
Neurology

• Nimodipine 60 mg q 6 hours
• If seizures treat
12. Neurology

• A 35- yo man presents with a severe boring unilateral headache that woke him from sleep. He had the same type of headache the night before. On exam he is noted to have lacrimation, flushing and rhinorrhea on the affected side. His neurological examination is otherwise normal. The most effective acute therapy for this man is:

  a) Cyclic antidepressants
  b) Calcium channel blockers
  c) 100% oxygen
  d) Lithium carbonate
12. Neurology

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  a) Cyclic antidepressants
  b) Calcium channel blockers
  c) 100% oxygen
  d) Lithium carbonate
13. Neurology

• All of the following statements regarding botulism are accurate except:

  a) Symptoms usually develop within 24-48 hours of ingestion of improperly preserved foods that are contaminated with botulinum toxin.

  b) The earliest and most reliable symptoms are dry mouth, dysphagia and dysarthria.

  c) The toxin produces symptoms by preventing the release of acetylcholine from nerve endings.

  d) The usual cause of death is respiratory paralysis.
13. Neurology

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Botulism
14. Neurology

• Which of the following statements regarding trigeminal neuralgia are not accurate?

a) Patients present with lancinating pain in the distribution of one or more divisions of the trigeminal nerve.

b) The first division of the trigeminal nerve is most commonly affected.

c) Tapping over “trigger points” along the distribution of the trigeminal nerve can precipitate an attack.

d) Long-term medical therapy is with carbamazepine. Phenytoin is another alternative.
14. Neurology

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d) Long-term medical therapy is with carbamazepine. Phenytoin is another alternative.
15. Neurology

• In evaluating the trauma patient, you observe that his best verbal response is inappropriate words, his best motor response is withdrawal from a painful stimulus and that he will only open his eyes in response to a painful stimulus. This patient’s score on the Glasgow Coma Score is:

a) 7  
b) 8  
c) 9  
d) 10
15. Neurology

• In evaluating the trauma patient, you observe that his best verbal response is inappropriate words, his best motor response is withdrawal from a painful stimulus and that he will only open his eyes in response to a painful stimulus. This patient’s score on the Glasgow Coma Score is:

a) 7
b) 8
c) 9
d) 10
16. Neurology

• As part of your neurological assessment of a comatose patient, you check the oculovestibular reflex. In response to irrigation of the patient’s left ear with ice water, there is slow tonic eye deviation to the left. This signifies that:

a) Both the brainstem and cerebral cortex are intact.
b) The brainstem is intact.
c) Brainstem dysfunction is present
d) None of the above
16. Neurology

As part of your neurological assessment of a comatose patient, you check the oculovestibular reflex. In response to irrigation of the patient’s left ear with ice water, there is slow tonic eye deviation to the left. This signifies that:

a) Both the brainstem and cerebral cortex are intact.

b) **The brainstem is intact.**

c) Brainstem dysfunction is present

d) None of the above
Neurology

• Testing
  • Sitting at 30° and intact TM

• Cold water
  • Intact brainstem causes eyes to deviate to stimulus
  • Intact cortex causes nystagmus to midline
  • No movement = brain dead

• Warm water
  • Intact brainstem causes eyes to deviate away from stimulus
  • Intact cortex causes nystagmus to midline

• COWS = direction of nystagmus = cold opposite, warm same
17. Neurology

- Which of the following C-spine/incomplete cord lesions occur by a mechanism other than flexion?
  a) Central cord syndrome
  b) Anterior cord syndrome
  c) Bilateral facet dislocation
  d) Clay-shoveler’s fracture
17. Neurology

Which of the following C-spine/incomplete cord lesions occur by a mechanism other than flexion?

a) Central cord syndrome
b) Anterior cord syndrome
c) Bilateral facet dislocation
d) Clay-shoveler’s fracture
Neurology

Hemicord Lesion

- Brown-Sequard syndrome
  - Lateral corticospinal tract damage
    - Ipsilateral upper motor neuron weakness
  - Posterior column
    - Ipsilateral vibration and proprioception loss
  - Anterolateral system
    - Contralateral pain and temperature loss

Anterior Cord Syndrome

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Mechanism</th>
<th>Clinical</th>
<th>Prognosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior cord</td>
<td>Flexion or Vascular</td>
<td>Complete loss of motor, pain, &amp; temperature below injury, but retains proprioception and vibratory sensation</td>
<td>Poor</td>
</tr>
<tr>
<td>Central cord</td>
<td>Forced Hypertension</td>
<td>Sensory and motor deficit Upper &gt; Lower Extremities</td>
<td>Average</td>
</tr>
<tr>
<td>Brown-Sequard</td>
<td>Penetrating Trauma</td>
<td>Ipsilateral loss of motor, vibratory sensation, and proprioception with contralateral loss of pain and temperature sensation</td>
<td>Good</td>
</tr>
</tbody>
</table>

Key:
- Motor loss
- Vibration & proprioception loss
- Pain and temperature loss
Neurology

Posterior Cord Syndrome
Posterior impact injuries or hyperextension forces compress or traumatisse the posterior (sensory) cortex of the spinal cord along with the posterior columns. Posterior lesions present with the loss of deep touch, position and vibration below the level of the lesion, with preservation of power, pain and temperature sensation. Unfortunately, the sense of proprioception (the unconscious awareness of a limb’s position in space) is lost, which can limit the patient’s potential for developing a functional gait.

Posterior cord syndrome:
Cord damage and associated motor and sensory loss.
Neurology

(A) Transverse cord lesion
(B) Hemicord lesion
(C) Central cord syndrome (small lesion)
(D) Central cord syndrome (large lesion)
(E) Posterior cord syndrome
(F) Anterior cord syndrome

KEY
- Lesion
- SENSORY/MOTOR LOSS:
  - Vibration and position sense loss
  - Pain and temperature sense loss
  - Motor loss

SPINAL CORD STRUCTURES:
- Lateral corticospinal tract (UMN)
- Anterior horn cells (LMN)
- Anterolateral pathways (pain and temperature sense)
- Posterior columns (vibration and position sense)
- Ventral commissure
18. Neurology

• A 45 yo male presents after outpatient MRI reveals cauda equine syndrome. Which of the following additional findings is most likely present?
  a) Decreased deep tendon reflexes
  b) Distal motor weakness and greater than proximal motor weakness
  c) Saddle anesthesia
  d) Urinary retention
18. Neurology

A 45 yo male presents after outpatient MRI reveals cauda equina syndrome. Which of the following additional findings is most likely present?

a) Decreased deep tendon reflexes
b) Distal motor weakness and greater than proximal motor weakness
c) Saddle anesthesia
d) **Urinary retention**
Cauda equina syndrome

- Urinary retention 90% SN
- Low back pain
- B/L motor and sensory
  - Dermatomes
- Hyporeflexia
A 45 yo male presents with persistent seizure activity. The paramedics report that he has exhibited tonic-clonic movements for the past 35 minutes. Which of the following features is characteristic of this patient’s condition?

a) Increased incidence in persons 25-50 years old
b) Ongoing seizure activity that persists after tonic-clonic movements end.
c) Seizure activity that is easily controlled with one agent.
d) Seizure activity that recurs after the patient returns to baseline mental status.
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b) **Ongoing seizure activity that persists after tonic-clonic movements end.**

c) Seizure activity that is easily controlled with one agent.

d) Seizure activity that recurs after the patient returns to baseline mental status.
Neurology

• Status epilepticus = seizures persisting for > 30 minutes or recurrent seizures without a return to baseline.
• More common at extremes of age
• Mortality 5-20% if controlled with single agent
• Mortality 65% if multiple agents are needed
20. Neurology

- A 42 yo male with no cardiac risk factors presents with vertigo. History and physical examination findings suggest a central rather than a peripheral cause include:
  a) Associated unilateral hearing loss
  b) Difficulty with rapid alternating movements
  c) Sudden onset of severe symptoms with vomiting
  d) Symptom reduction following repeated Dix-Hallpike testing
A 42 yo male with no cardiac risk factors presents with vertigo. History and physical examination findings suggest a central rather than a peripheral cause include:

a) Associated unilateral hearing loss
b) **Difficulty with rapid alternating movements**
c) Sudden onset of severe symptoms with vomiting
d) Symptom reduction following repeated Dix-Hallpike testing
Neurology

• Signs of cerebellar dysfunction = difficulty with rapid alternating movements, poor tracking from finger to nose or pronator drift
• Peripheral vertigo etiologies: Meniere disease, labrynthitis, BPV
• Peripheral vertigo nystagmus (horizontal or rotational) fast component is in the direction of the affected ear.
• Peripheral vertigo nystagmus should fatigue with repeated testing
The most common form of migraine headache is:

a) Basilar-type migraine
b) Hemiplegic migraine
c) Migraine without aura
d) Ophthalmoplegic migraine
21. Neurology

• The most common form of migraine headache is:
  a) Basilar-type migraine
  b) Hemiplegic migraine
  c) **Migraine without aura**
  d) Ophthalmoplegic migraine
Neurology

• Migraine without aura, or common migraine is 80% of migraines
• Migraine with aura, or classic migraine
  • Aura 10-20 minutes of bright rim of light
• Migraine symptoms, Unilateral, pulsating, mod-severe intensity
  • Nausea
  • Vomiting
  • Photophobia
  • Phonophobia
  • Osmophobia (odors)
  • Lightheadedness
Neurology

• Basilar migraine symptoms (brainstem)
  • Visual disturbance, or blindness
  • Dysarthria, vertigo, tinnitus, paresis, altered consciousness stops in 1 hour

• Hemiplegic migraines aura symptoms
  • Sensory loss and slowly progressing motor weakness stops in 1 hour

• Ophthalmoplegic migraine
  • CN III palsy
Neurology

- Temporal arteritis
  - > 50 yo female with throbbing, burning temporal headache
  - Worse at night, night sweats, weight loss, blurred vision, polymyalgia rheumatic
  - PE: ttp on temple, decreased VA, pulseless
  - SED rate > 50-100 mm/hr
  - Temporal artery biopsy confirms
  - Treat with 60-80 mg prednisone daily
  - If blindness occurs then will lose other eye in 1-20 days in 75%
22. Neurology

A 64 yo male presents with low back pain. He denies trauma, or incontinence of any type. It is worse after walking long periods of time. On examination he walks in a flexed position, + straight leg raise B/L, normal rectal tone and no neurological deficits. What is the most likely diagnosis?

a) Ankylosing spondylitis
b) Malignancy
c) Peripheral vascular disease
d) Spinal stenosis
22. Neurology

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a) Ankylosing spondylitis
b) Malignancy
c) Peripheral vascular disease
d) Spinal stenosis
Neurology

Spinal stenosis

Normal

Stenosis

© Mayfield Clinic
23. Neurology

• Which of the following patients requires emergent head CT?
  a) A 23 yo female with gradual onset, throbbing, bilateral frontal headache
  b) A 28 yo female who is 28 weeks gestation with HTN, severe headache and blurry vision
  c) A 65 yo female with a new onset seizure but no focal deficits
  d) A 79 year old female with near syncope and an old right hemiparesis
23. Neurology

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A 32 yo male with DM, presents with headache and left eye pain. The headache is sharp, left midface and progressively worse over 2 days. He underwent a root canal 4 days ago for a dental abscess. Which of the following findings would be most consistent with a serious intracranial complication of a dental abscess?

a) Decreased vision in the left eye with an afferent pupillary defect
b) Lateral gaze palsy in left eye
c) Left sided facial paresis
d) Left sided ptosis, miosis and loss of sweating
24. Neurology

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Neurology

• Cavernous sinus thrombosis
• CN II, III, IV and VI run through cavernous sinus
  • VI is free so first to be affected
25. Neurology

- An obese young woman presents with a 1 month history of vomiting and dull headaches that are typically worse in the morning. Urinary pregnancy is negative. Which of the following studies is likely to be diagnostic?
  a) Abdominal CT scan
  b) Abdominal series
  c) Lumbar puncture
  d) Pelvic US
25. Neurology

• An obese young woman presents with a 1 month history of vomiting and dull headaches that are typically worse in the morning. Urinary pregnancy is negative. Which of the following studies is likely to be diagnostic?

a) Abdominal CT scan
b) Abdominal series
c) Lumbar puncture
d) Pelvic US
Neurology

• Pseudotumor cerebri = idiopathic intracranial hypertension

• Criteria
  • Normal neurological examination, except for papilledema, blind spot, field defect
  • Headache
  • CSF pressure > 250 mm Water while recumbent

• Triad
  • Headache, double vision, incontinence
A 3 yo male with a h/o Chiari malformation and VP shunt placement is brought by his mother because he has intermittent headaches, vomiting, and abdominal pain for 4 days. His siblings have recently been ill with influenza A. On examination, the child is irritable. He is afebrile and has no signs of infection around the catheter. The catheter is easily compressible and refills < 3 seconds. What are the appropriate next steps?

a) Order a head CT, shunt series, and shunt tap  
b) Treat with acetazolamide to decrease CSF production  
c) Treat with antiemetics and rehydration and attempt to feed  
d) Treat with oseltamavir and discharge with instructions to F/U with PCP
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b) Treat with acetazolamide to decrease CSF production
c) Treat with antiemetics and rehydration and attempt to feed
d) Treat with oseltamavir and discharge with instructions to F/U with PCP
27. Neurology

• Which of the following patients is IV TPA for ischemic stroke the appropriate next step?

a) 45 yo male with a h/o cirrhosis, symptoms onset 120 minutes ago; platelet count 75,000/mcL, BP 175/90, NIH stroke score 24, head CT negative

b) 45 yo female with sudden onset headache with seizure, symptoms onset 90 minutes earlier; BP 160/90, NIH stroke scale 18, head CT negative

c) 60 yo male with a h/o HTN, on atenolol, symptom onset 60 minutes ago; BP 210/70, NIH stroke scale 14, head CT negative

d) 60 yo female with a h/o brain tumor resection 6 months earlier, symptoms onset 90 minutes ago; BP 175/90, NIH stroke scale 18, head CT negative
27. Neurology

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# Table 3.1. Thrombolytic Therapy for Acute Ischemic Stroke: Inclusion and Exclusion Criteria

## Inclusion Criteria
- Stroke onset < 3 hours. Time of onset is the time when the patient was last known to be normal. If time of onset is uncertain, tPA should not be given, with the possible exception that diffusion/perfusion MRI and MRA show a vascular occlusion with no or minor brain infarction and a large area of brain tissue that is underperfused but not yet infarcted. tPA is approved only for IV administration within 3 hours of stroke onset.
- No hemorrhage on CT scan.
- Early infarct not > 1/3 of middle cerebral artery territory.
- Screening NIH stroke score (Table 3.2). Ideal candidates for thrombolytic therapy have scores of 4-20 (mild to moderate deficit). Patients with scores ≤ 4 (no or very mild deficit) have a very good prognosis and may not benefit from tPA. Patients with scores > 20 (severe deficit) are at increased risk of intracerebral hemorrhage; individualized therapy based on an estimate of the risk/benefit ratio is required in these cases.

## Exclusion Criteria
- Active bleeding.
- Systolic BP > 185 mmHg or diastolic BP > 110 mmHg.
- Aggressive treatment required to reduce blood pressure to specified limits.
- Rapidly improving or minor symptoms.
- Seizure at onset of stroke.
- Symptoms of subarachnoid hemorrhage.
- Prior intracerebral hemorrhage felt by examiner to predispose patient to high risk of recurrence.
- Stroke or head trauma within 3 months.
- Myocardial infarction within 3 months.
- Major surgery or other serious trauma within 2 weeks.
- Gastrointestinal or urinary tract hemorrhage within 21 days.
- Arterial puncture at a noncompressible site within 7 days.
- Taking anticoagulants or receiving heparin within 48 hours.
- INR > 1.5 or elevated PTT.
- Platelet count < 100,000/mm³.
- Glucose < 50 mg/dL or > 400 mg/dL.
- Pregnancy or lactation.
28. Neurology

Which of the following statements regarding LP results in SAH is correct?

a) A 30% decrease in the RBC count from tube 1-4 suggests SAH
b) A traumatic tap consistently produces more RBCs in the CSF than a SAH does
c) An RBC count > 10,000/ mcL is consistent with a radiographically detectable SAH
d) CSF examination 1 hour after the event reliably shows xanthochromia
28. Neurology

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  c) An RBC count > 10,000/ mcL is consistent with a radiographically detectable SAH
  d) CSF examination 1 hour after the event reliably shows xanthochromia
Neurology

• SAH
  • 15% negative head CT
  • Traumatic tap
    • Decrease ≥ 30%
    • Tube 4 RBC approach 0
    • Tube 4 RBC count < 500/mcL
    • Clotting in tap
  • SAH
    • Tube 4 RBC count > 1,000/mcL = SAH
    • RBC decrease < 9%

• Xanthochromia takes 4-6 hours to occur
29. Neurology

- A 45 yo male presents with severe neck pain after falling onto his head from a scaffold. He is breathing spontaneously. He has sensation to the level of his clavicle, including the arms to his thumbs, but not below it. He can shrug his shoulders, but cannot flex at the elbows or move his arms or legs. If this is a complete neurologic lesion, at what level is this spinal chord injury?
  a) C3
  b) C5
  c) C6
  d) C8
29. Neurology

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a) C3
b) C5
c) C6
d) C8
Neurology

• Motor
  • C3 – diaphragm, trapezius
  • C4 – diaphragm
  • C5 – biceps, deltoid
  • C6 – biceps
  • C7 – Triceps
  • C8 – Finger flexors
  • T1 – Hand intrinsics
Neurology

Flexion C spine injuries

• Unstable
  • Anterior subluxation (potentially)
  • Bilateral facet dislocation
  • Flexion teardrop
  • Anterior atlantoaxial dislocation
  • Atlanto-occipital dislocation
  • Odontoid
  • Unilateral facet dislocation (potentially)
  • Rotatory atlantoaxial dislocation

• Stable
  • Wedge
  • Clay shoveler’s

Extension C spine injuries

• Unstable
  • Jefferson (axial load)
  • Posterior atlantoaxial dislocation
  • Hyperextension-dislocation
  • Extension teardrop (only in extension)
  • C1 posterior arch (potentially)
  • Hangman’s C2
  • Hyperextension fracture/dislocation
Stable flexion fracture

Wedge fracture

- Caused by hyperflexion with vertical height of the vertebral body decreased anteriorly, as viewed on the lateral film
- The posterior elements remain intact
- This is a stable injury

Clay Shoveler’s Fracture

- Stable avulsion fracture through the spinous process of a vertebra occurring at any of the lower cervical or upper thoracic vertebrae, classically at C6 or C7

http://www.imagedetection.co.uk/images/cervicalspine/Anterior_WEDGE_COMPRESSION.jpg
http://www.mypacs.net/cases/CLAY-SHOVELERS-FRACTURE-C6-SPINOUS-PROCESS-T102636.html
Extra synapses

Bell's Palsy compared to CVA
Extra synapses

• Spinal cord (myelopathies)
  • Syringomyelia = fluid filled cavity within spinal cord
    • Loss of pain and temperature, preservation of posterior column
    • Capelike distribution
  • Multiple sclerosis (10 > age < 55)
    • UMN (weakness and hyperreflexia)
    • Sensory abnormalities
    • Cerebellum
    • Bladder and bowel dysfunction
    • Optic neuritis
    • Medial longitudinal fasciculus (internuclear ophthalmoplegia)
    • Relapsing remitting, secondary progressive, primary progressive
Internuclear Ophthalmoplegia

“Look to the left”
- Lesion at right MLF
- Right eye unable to adduct

“Look straight ahead”
- Right eye able to abduct

“Look to the right”
- Right eye unable to adduct

“Cross your eyes”
- Right eye able to adduct

CN III nucleus
CN VI nucleus
PPRF

Input from right FEF
Extra synapses

• Transverse myelitis
  • Post viral, inflammation, or toxin
  • Pain and temperature sensation reduction
  • Vibration and position sense may also be reduced
  • Weakness or paralysis of lower extremities
Extra synapses

Herniation syndromes

A) Uncal (lat transtentorial): Lpsi CN III palsy ("blown" pupil) + contra hemiplegia/posturing (Kernohan notch phenomenon)
   - temporal lobe mass → medial temporal lobe under tent. cerebelli

B) Central transtentorial: Coma + b/l small pupils
   - decorticate → decerebrate posturing + rostral → caudal loss brainstem reflexes
   - diffuse cerebral edema → ↓ displacement diencephalon

C) Subfalcine: Coma + contra. weakness → posturing
   - esp leg ± ACA stroke
   - frontal/parietal mass → cingulate gyrus under falx

D) Cerebellar (↑ or ↓): Cerebellar Si/Sx + medullary dysfxn → coma + b/l posturing
Which of the following is the defining triad of hemolytic uremic syndrome?

a) Abdominal distension, headache, HTN
b) Abdominal pain, purpura, swollen joints
c) Anemia, high creatinine, low platelets
d) Cyanosis, low back pain, vomiting
30. Hematology

• Which of the following is the defining triad of hemolytic uremic syndrome?
  a) Abdominal distension, headache, HTN
  b) Abdominal pain, purpura, swollen joints
  c) **Anemia, high creatinine, low platelets**
  d) Cyanosis, low back pain, vomiting
Hematology

- **HUS in children**
  - Microangiopathic hemolytic anemia
  - Renal failure
  - Thrombocytopenia

- **TTP in adults**
  - Microangiopathic hemolytic anemia
  - Renal failure
  - Thrombocytopenia
  - Fever
  - Stroke
31. Hematology

• A 33 yo Asian female presents with fatigue and shortness of breath. She recently started nitrofurantoin for UTI. Laboratory testing reveals microcytic, hypochromic anemia. She has a history of anemia. Which of the following is the likely diagnosis?

a) G6PD deficiency
b) Iron deficiency
c) Sickle cell disease
d) Thalassemia
A 33 yo Asian female presents with fatigue and shortness of breath. She recently started nitrofurantoin for UTI. Laboratory testing reveals microcytic, hypochromic anemia. She has a history of anemia. Which of the following is the likely diagnosis?

a) G6PD deficiency
b) Iron deficiency
c) Sickle cell disease
d) Thalassemia
Hematology

• Thalassemia
  • African, Asian, Mediterranean, Middle-Eastern
  • Alpha thalassemia has beta tetramers and cause RBC destruction
    • 4 deletions = in utero death, Bart hemoglobin (4 gammas), hydrops fetalis
    • 3 deletions = Mixture of hemoglobin H (4 betas) and Barts, Heinz bodies, target cells, HSM
    • 2 deletions = Minor
    • 1 deletion = Minima, silent carriers
  • Beta thalassemia has alpha tetramers
    • Thalassemia minor = 1 deletion of beta tetramers
    • Thalassemia major = 2 deletions of beta tetramers, splenomegaly, bone deformities
    • Thalassemia intermedia = Mixture of 1 deletion and no deletions
32. Hematology

A 6 year old boy is brought by his father 1 hour after sustaining a head injury. He fell off his bicycle and not wearing a helmet. PMH: Hemophilia A. Which of the following is the first step in management?

a) Blood transfusion using O negative whole blood
b) CT
c) Factor VIII therapy to 100% activity
d) Factor IX therapy to 50% activity
32. Hematology

A 6 year old boy is brought by his father 1 hour after sustaining a head injury. He fell off his bicycle and not wearing a helmet. PMH: Hemophilia A. Which of the following is the first step in management?

a) Blood transfusion using O negative whole blood
b) CT
c) **Factor VIII therapy to 100% activity**
d) Factor IX therapy to 50% activity
Hematology

• Hemophilia A
  • X-linked recessive
  • 100% activity should be goal with 50 u/kg of factor VIII
  • 1 unit of VIII/kg with increase activity 2% = 50 u/kg VIII

• Hemophilia B, Christmas disease, Factor IX deficiency
  • X-linked recessive
33. Hematology

• A 35 yo male with hemophilia A presents with right shoulder pain. He says he might be bleeding in his shoulder. He weighs 80 kg. How much factor must be used to reach 40% activity?

a) 400 U  
b) 600 U  
c) 800 U  
d) 1,600 U
33. Hematology

A 35 yo male with hemophilia A presents with right shoulder pain. He says he might be bleeding in his shoulder. He weighs 80 kg. How much factor must be used to reach 40% activity?

a) 400 U  
b) 600 U  
c) 800 U  
d) 1,600 U

Assume 0% activity and 2% activity/1 unit

\[
\frac{40\%}{2\%/U/kg} = 20 \text{ U} \\
20 \text{ U} \times 80 \text{ kg} = 1600 \text{ U}
\]
A 26 yo female with a history of sickle cell disease presents with pain in her legs. Laboratory testing reveals the following: WBC 10,000/mcL; Hgb 4 g/dL; reticulocyte count , 0.5%. Which of the following treatments has been proved to be helpful for this condition?

a) Antibiotic therapy
b) Exchange transfusion
c) Oxygen administration
d) Transfusion of PRBCs
A 26 yo female with a history of sickle cell disease presents with pain in her legs. Laboratory testing reveals the following: WBC 10,000/mcL; Hgb 4 g/dL; reticulocyte count 0.5%. Which of the following treatments has been proved to be helpful for this condition?

a) Antibiotic therapy  
b) Exchange transfusion  
c) Oxygen administration  
d) Transfusion of PRBCs
Hematology

- Aplastic crisis = reticulocyte count < 3%
- Parvovirus is typical infection
A 34 yo woman with a h/o leukemia presents with bleeding gums, increased menses and bruising easier. Lab testing reveals Hgb 10 mg/dL, platelets 20,000/mcL; PT 17 seconds; PTT 30 seconds; and elevated d-dimer. Which is the most likely diagnosis?

a) Blast crisis
b) Disseminated intravascular coagulation
c) Liver cirrhosis
d) Primary fibrinolysis
A 34 yo woman with a h/o leukemia presents with bleeding gums, increased menses and bruising easier. Lab testing reveals Hgb 10 mg/dL, platelets 20,000/mcL; PT 17 seconds; PTT 30 seconds; and elevated d-dimer. Which is the most likely diagnosis?

a) Blast crisis
b) Disseminated intravascular coagulation
c) Liver cirrhosis
d) Primary fibrinolysis
36. Hematology

- All of the following tests are normal in hemophilia A except:
  a) Platelet function studies
  b) PT
  c) PTT
  d) Platelet count
• All of the following tests are normal in hemophilia A except:
  a) Platelet function studies
  b) PT
  c) PTT
  d) Platelet count
Hematology

Tests: PT and APTT

Principles....
Citrated blood
Centrifuged -> Platelet poor plasma
+ Activator
+ Platelet substitute
+ Calcium
-> Measure time to clot formation
37. Hematology

- Which of the following statements regarding von Willebrand’s disease is accurate?

a) The treatment of choice for all types is cryoprecipitate
b) Deficiencies in factors VIII:vWF, VIII:C, and VIII:vWF antigen are characteristic.
c) Mucocutaneous bleeding predominates and bleeding episodes are generally milder than with hemophilia.
d) It is an autosomal dominant disorder that affects both males and females.
37. Hematology

• Which of the following statements regarding von Willebrand’s disease is accurate?

  a) **The treatment of choice for all types is cryoprecipitate**
  b) Deficiencies in factors VIII:vWF, VIII:C, and VIII:vWF antigen are characteristic.
  c) Mucocutaneous bleeding predominates and bleeding episodes are generally milder than with hemophilia.
  d) It is an autosomal dominant disorder that affects both males and females.
Hematology

- **Cryoprecipitate contains:**
  - i. Anti-hemophilic factor (factor VIII) 40-160 units/bag.
  - ii. Ristocetin or von Willebrand factor (factor viii cofactor).
  - iii. Factor VIII related antigen (factor VIIIR Ag).
  - iv. Fibrinogen 200 to 250 mg/ bag.
  - v. Factor XIII and trace elements of other factors.

- The amount of factor VIIc and fibrinogen in individual bags may vary widely.
- Factor IX is not present in clinically significant amounts.

<table>
<thead>
<tr>
<th>Blood component therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component</strong></td>
</tr>
<tr>
<td>FFP</td>
</tr>
<tr>
<td>Cryoprecipitate</td>
</tr>
<tr>
<td>Random donor platelel</td>
</tr>
<tr>
<td>(RDP)</td>
</tr>
<tr>
<td>Single donor platelet</td>
</tr>
<tr>
<td>(SDP)</td>
</tr>
<tr>
<td>Whole blood</td>
</tr>
</tbody>
</table>
38. Hematology

• For the patient that is on warfarin therapy and is actively bleeding, or requires emergent surgery, the specific blood product that should be ordered is:
  a) Packed RBC’s
  b) Cryopercipitate
  c) Factor concentrates
  d) Fresh frozen plasma
38. Hematology

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  a) Packed RBC’s
  b) Cryopercipitate
  c) Factor concentrates
  d) Fresh frozen plasma
39. Hematology

• Expected lab findings on routine screening of a patient with sickle cell disease would include all of the following **except**:  
  
  a) Decreased hemoglobin  
  b) Increased reticulocyte count  
  c) Normal platelet count  
  d) Increased WBC count
39. Hematology

• Expected lab findings on routine screening of a patient with sickle cell disease would include all of the following except:

a) Decreased hemoglobin
b) Increased reticulocyte count
c) Normal platelet count
d) Increased WBC count
40. Hematology

• In which of the following conditions is the patient most likely to have a normal platelet count?
  a) Disseminated intravascular coagulation
  b) Excessive hemorrhage
  c) Hemolytic uremic syndrome
  d) Von Willenbrand disease
In which of the following conditions is the patient most likely to have a normal platelet count?

a) Disseminated intravascular coagulation
b) Excessive hemorrhage
c) Hemolytic uremic syndrome
d) Von Willenbrand disease
Hematology

• Von Willebrand disease
  • Hereditary
  • Binds factor VIII
  • Type I – 60-80% of patients, ↓ quantities (20-50% of normal), Autosomal dominant, minor symptoms
  • Type II – 15-30% of patients, qualitative deficiency, Autosomal dominant
  • Type III – 5-10% of patients, Severe deficiency and frequent bleeding, Autosomal recessive
Deramratology – what is this rash?
41. Dermatology

- All of the following regarding allergic contact dermatitis due to toxicodendrons are accurate except:
  
a) The development of a reaction requires prior sensitization (days or years earlier).
  
b) The rash usually appears 5-21 days after a first-time exposure and is characterized by erythema and itching that may be associated with papules, vesicles or bullae.
  
c) The rash can spread is vesicles are ruptured and the blister fluid contaminates unaffected skin.
  
d) Treatment of moderate-severe dermatitis may include all of the following modalities: aluminum acetate compresses, Aveeno baths, oral antihistamines and systemic corticosteroids.
41. Dermatology

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42. Dermatology

• The presence of a blanching erythematous rash resembling a sunburn that subsequently fades and is followed by a full-thickness desquamation of the skin (especially on the palms and soles) is classic of:

  a) Exfoliative dermatitis
  b) Toxic shock syndrome
  c) Staphylococcus scalded skin syndrome
  d) Erysipelas
The presence of a blanching erythematous rash resembling a sunburn that subsequently fades and is followed by a full-thickness desquamation of the skin (especially on the palms and soles) is classic of:

a) Exfoliative dermatitis

b) Toxic shock syndrome

c) Staphylococcus scalded skin syndrome

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A 6 year old child is brought in for an evaluation of a maculopapular rash. According to the mother the rash started on the face and spread rapidly to the trunk and extremities. The rash was preceded by a prodrome of high fever, cough, runny nose and conjunctivitis. The most likely diagnosis is:

- a) Roseola
- b) Rubeola
- c) Rubella
- d) Varicella
43. Dermatology

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  a) Roseola
  b) Rubeola
  c) Rubella
  d) Varicella
44. Dermatology

Which of the following is correct about the rash depicted?

a) Combination of oral and topical antibiotic therapy is routinely necessary
b) Gram stain of the lesion is unlikely to demonstrate bacteria
c) Topical antibiotic therapy alone is the standard treatment
d) Topical povidone-iodine application should be part of routine management
44. Dermatology

• Which of the following is correct about the rash depicted?
  a) Combination of oral and topical antibiotic therapy is routinely necessary
  b) Gram stain of the lesion is unlikely to demonstrate bacteria
  c) **Topical antibiotic therapy alone is the standard treatment**
  d) Topical povidone-iodine application should be part of routine management
Dermatology

• Impetigo
• Staphylococcus aureus and streptococcus pyogenes
• Honey crusted lesions
• Mupirocin ointment
• Treatment will not prevent postinfective glomerulonephritis
Dermatology

• Nikolsky’s sign = separation of dermis and epidermis
  • Bullous pemphigoid
  • Pemphigous vulgaris
  • SSSS
  • Stevens-Johnson syndrome
  • TEN

<table>
<thead>
<tr>
<th>Pemphigus vulgaris</th>
<th>Bullous pemphigoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger patients affected</td>
<td>Elderly are affected</td>
</tr>
<tr>
<td>Mucosal involvement is common (Oral lesions present)</td>
<td>Mucosal involvement is rare (Oral lesions absent)</td>
</tr>
<tr>
<td>Antibodies against desmoglein 3 (desmosomes)</td>
<td>Antibodies against hemidesmosomes</td>
</tr>
<tr>
<td>Intraepidermal (superficial) blisters</td>
<td>Subepidermal (deep) blisters</td>
</tr>
<tr>
<td>Blisters are flaccid and rupture easily</td>
<td>Blister are tense and firm</td>
</tr>
<tr>
<td>Nikolsky’s sign is positive</td>
<td>Nikolsky’s sign is negative</td>
</tr>
<tr>
<td>Acantholysis on Tzanck smear</td>
<td>No acantholysis on Tzanck smear</td>
</tr>
<tr>
<td>Immunofluorescence shows net-like IgG</td>
<td>Immunofluorescence shows linear IgG</td>
</tr>
<tr>
<td>Most patients die without treatment</td>
<td>Prognosis is good, most patients do well</td>
</tr>
<tr>
<td>Tombstone appearance of basal layer</td>
<td>Eosinophilic infiltration seen on histology</td>
</tr>
</tbody>
</table>
Dermatology

• Blanching erythematous rash = RBC contained in capillaries
• Non blanching like petechiae and purpura = extravastated RBCs
• Punctate bleeding of scaly lesion (Psoriasis) that is scratched = Auspitz sign
• Edema of the skin in the area of the scratch = dermatographism
Dermatology

- Distribution of smallpox rash
- Distribution of chickenpox rash

(Smallpox rash)  
(Chickenpox rash)
45. Dermatology

- A 48 yo male presents with the rash depicted. He has been taking trimethoprim-sulfamethoxazole for a prostate infection but is otherwise healthy. BP 130/70 mm Hg, pulse 108 bpm, RR 14 rpm, T 38°C. Following fluid administration, what is the most appropriate disposition?

  a) Admit to burn ICU
  b) Discharge with an oral steroid taper and outpatient dermatology appointment
  c) Discharge with strict return precautions
  d) Start IV steroids and admit to a floor bed
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Dermatology

- Toxic epidermal necrosis – TEN
  - Like Stevens Johnson but worse, > BSA
  - Onset 1-3 weeks after exposure
  - Prodrome
    - Sore throat
    - Myalgias
    - Fever
    - Arthralgias

- Drugs
  - Penicillins, NSAIDS, anticonvulsants, sulfonamides
A 30 yo female presents with partial thickness burns on her entire back and posterior aspects of both arms after her shirt caught on fire. She is 65 kg. By the Parkland formula, how much crystalloid is required in the first 24 hours?

a) 2,340 mL
b) 4,680 mL
c) 7,020 mL
d) 9,360 mL
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a) 2,340 mL
b) 4,680 mL
c) 7,020 mL
d) 9,360 mL
Dermatology

- 2\textsuperscript{nd} - 3\textsuperscript{rd} degree burns half of crystalloid in first 8 and the second in last 16 hours
- 4 mL/kg/%BSA burn
- 4 \times 65 \times 27\% = 7,020 mL/24 hours
47. Dermatology

- Which of the following pairings of skin lesion and morphology is correct?
  a) Bulla – fluid filled circumscribed lesion < 0.5 cm diameter
  b) Macule – Palpable circumscribed area of skin color change
  c) Purpura – any skin eruption resulting from extravastated blood
  d) Wheel – flakes of stratum corneum
47. Dermatology

• Which of the following pairings of skin lesion and morphology is correct?
  a) Bulla – fluid filled circumscribed lesion < 0.5 cm diameter
  b) Macule – Palpable circumscribed area of skin color change
  c) Purpura – any skin eruption resulting from extravastated blood
  d) Wheel – flakes of stratum corneum
Dermatology

- Vesicle – fluid filled lesion < 0.5 cm
- Pustule – vesicle filled with purulent material
- Bulla – fluid filled lesion > 0.5 cm in diameter
- Ecchymosis – purpura > 1 cm in diameter
- Petechiae – purpura smaller than 3 mm
- Purpura – skin eruption from extravasated blood
- Nodule – elevated and > 0.5 cm in diameter
- Papule – elevated and < 0.5 cm in diameter
- Plaque – plateau like larger surface area than height
- Patch – barely elevated plaque between macule and plaque
- Macule – nonpalpable area of skin color change

- Telangiectasia – small blanchable superficial capillaries
- Erythema – red skin appearance due to vasodilation, blanchable
- Induration – dermal thickening that is palpable
- Lichenification – visible and palpable epidermal thickening
- Scales – flakes of stratum corneum
- Ulcer – defect that extends to dermis (scars)
- Erosion – defect in epidermis only
- Wheal – papule or plaque of dermal edema
Dermatology
Dermatology

Classic Childhood Exanthems

Historically, there were six childhood exanthems whose etiologies are now well-defined:

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>NAME</th>
<th>ETIOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Disease</td>
<td>Measles (Rubeola)</td>
<td>Measles virus</td>
</tr>
<tr>
<td>Second Disease</td>
<td>Scarlet Fever</td>
<td><em>Streptococcus pyogenes</em></td>
</tr>
<tr>
<td>Third Disease</td>
<td>Rubella</td>
<td>Rubella virus</td>
</tr>
<tr>
<td>Fourth Disease</td>
<td>Duke’s Disease</td>
<td>No longer accepted as a distinct disorder</td>
</tr>
<tr>
<td>Fifth Disease</td>
<td>Erythema Infectiosum</td>
<td>Parvovirus B19</td>
</tr>
<tr>
<td>Sixth Disease</td>
<td>Roseola Infantum</td>
<td>HHV-6 and HHV-7</td>
</tr>
</tbody>
</table>

American Academy of Dermatology
Dermatology

<table>
<thead>
<tr>
<th>Exanthem</th>
<th>Cause</th>
<th>Pattern</th>
<th>Distinguishing Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterovirus infection (Choice A)</td>
<td>Echovirus most common</td>
<td>Mild, nonspecific upper respiratory symptoms followed by a mild truncal rash (most common)</td>
<td>None</td>
</tr>
<tr>
<td>Roseola infantum (choice B)</td>
<td>HHV-6</td>
<td>High fever in infants for 2-3 days, followed by rose-pink rash</td>
<td>&quot;Rose-pink&quot;</td>
</tr>
<tr>
<td>Rubella (choice C)</td>
<td>Rubella virus</td>
<td>High fever and red maculopapular rash occur together</td>
<td>Occipital adenopathy</td>
</tr>
<tr>
<td>Rubella (Choice D)</td>
<td>Measles virus</td>
<td>Rash and fever occur together</td>
<td>Prodrome of cough, coryza, and Koplik spots</td>
</tr>
<tr>
<td>Scarlet fever (Choice E)</td>
<td>Streptococcal infection</td>
<td>Confluent rash preceded by pharyngitis</td>
<td>Strawberry tongue</td>
</tr>
<tr>
<td>Erythema Infectiosum</td>
<td>Parvovirus B-19</td>
<td>Lacy reticular rash</td>
<td>Rash looks like &quot;mottled skin&quot;</td>
</tr>
</tbody>
</table>
Measles
Scarlet fever

Rheumatic Fever: Criteria

Mnemonic: “JONES CAFE PAL”

Major Criteria

| J | Joint Involvement |
| O | Looks like a heart = myocarditis |
| N | Nodules, subcutaneous |
| E | Erythema marginatum |
| S | Sydenham chorea |

Minor Criteria

| C | CRP Increased |
| A | Arthralgia |
| F | Fever |
| E | Elevated ESR |
| P | Prolonged PR Interval |
| A | Anamnesis of Rheumatism |
| L | Leukocytosis |

Diagnosis

Throat cultures growing GABHS OR Elevated anti-streptolysin O titers

2 Major criteria

OR

1 Major criterion and 2 Minor criteria
Rubella

Clinical findings

- Malaise
- Low grade fever
- Morbilliform rash
- Rash starts on Face Extremities
- Rarely lasts more than 5 days
- No features of the rash give clues to definitive diagnosis of Rubella.
Erythema infectiosum
Roseolum infantum
Molluscum contagiosum
Pityriasis rosea
Erythema multiforme
Erythema nodosum
Lyme
Urticaria
48. Psychiatry

• A 16 yo female presents with fatigue and vague abdominal pain. Exam is notable for thin appearance, bradycardia, decreased enamel on teeth, calluses on dorsal side of right hand. The ECG is as shown. What is the most likely diagnosis?

a) Advanced AIDS
b) Eating disorder
c) Hyperthyroidism
d) Psychotic disorder
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c) Hyperthyroidism
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49. Psychiatry

• All of the following are effective in the treatment of panic disorder except:
  a) Traditional psychotherapy
  b) High-potency benzodiazepines
  c) Specialized cognitive-behavioral therapy
  d) Tricyclic antidepressants, fluoxetine, and MAOIs
49. Psychiatry

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c) Specialized cognitive-behavioral therapy
d) Tricyclic antidepressants, fluoxetine, and MAOIs
50. Psychiatry

• The most effective drug for the treatment of a hypertensive crisis that occurs with in association with an MAOI when a tyramine-containing food is ingested is:

a) A beta blocker
b) Phentolamine
c) Thorazine
d) Nitroprusside
50. Psychiatry

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a) A beta blocker
b) Phentolamine
c) Thorazine
d) Nitroprusside
51. Psychiatry

• Which of the following pre-existing psychiatric disorders is **not** considered a risk factor for suicide?

a) Schizophrenia
b) Pain disorder
c) Alcoholism
d) None of the above
51. Psychiatry

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b) Pain disorder
c) Alcoholism
d) None of the above
52. Psychiatry

- The neuroleptic agent of choice for use in the Emergency Department is:
  a) Trifluorperazine
  b) Thioridazine
  c) Chlorpromazine
  d) Haloperidol
52. Psychiatry

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  a) Trifluorperazine
  b) Thioridazine
  c) Chlorpromazine
  d) Haloperidol
53. Psychiatry

• Which of the following findings is least characteristic of the profile of a patient with an organic illness?
  a) Visual hallucinations
  b) Impaired cognition and memory loss
  c) Disorientation and altered level of consciousness
  d) The patient believes his behavior is normal
53. Psychiatry

- Which of the following findings is **least** characteristic of the profile of a patient with an organic illness?

a) Visual hallucinations
b) Impaired cognition and memory loss
c) Disorientation and altered level of consciousness
d) **The patient believes his behavior is normal**
Psychiatry

• Primary psychiatric disorder = gradual onset weeks to months; auditory hallucinations, age 12-40, alert and oriented, delusions
54. Administration

• In planning for an Emergency Department and patient flow to inpatient units, the average ED will admit what percentage of patients?

  a) 16%
  b) 30%
  c) 50%
  d) 66%
54. Administration

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a) 16%

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d) 66%
55. Administration

- In order to be compliant with the Joint Commission, all hospitals must have a written disaster plan and conduct disaster drills.

  a) One time per year
  b) Two times per year
  c) Three times per year
  d) Disaster drills are recommended but are not required as they are disruptive to normal hospital operations.
55. Administration

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56. Administration

• The state Department of Health mandates reporting all of the following except:

a) Cases of sexually transmitted disease
b) Victims of gunshot and stab wounds
c) Births that occur in the Emergency Department
d) Victims of child or sexual abuse
56. Administration

- The state Department of Health mandates reporting all of the following except:
  a) Cases of sexually transmitted disease
  b) Victims of gunshot and stab wounds
  c) **Births that occur in the Emergency Department**
  d) Victims of child or sexual abuse
57. Administration

- On average, what percentage of hospital admission come from the Emergency Department?
  a) 30%
  b) 50%
  c) 66%
  d) 80%
57. Administration

• On average, what percentage of hospital admission come from the Emergency Department?

   a) 30%
   b) 50%
   c) 66%
   d) 80%