

## Dr. Carol Rivers' Preparing for the Written Board Exam

### Errata List (updated 12/26/2019)

We apologize for any errors. Please contact us if you find any further discrepancies.

#### Page 44

##### D. Nitroglycerin

1. Decreases ischemic pain (and consequently catecholamine release); no proven reduction in mortality but recommended nevertheless if no contraindications
2. Pathophysiology
  - a. Dilates collateral coronary vessels and increases collateral blood flow to ischemic myocardium
  - b. Has antiplatelet effects and reduces infarct size ~~and mortality~~
  - c. Decreases myocardial oxygen demand by decreasing preload, left ventricular end-diastolic volume, and afterload (which makes it the drug of choice if coexisting left ventricular failure)
  - d. May also reduce myocardial susceptibility to ventricular dysrhythmias during ischemia and reperfusion

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##### 4. Endocarditis

a. The causative organism varies with the length of time the valve has been present; <2 months after surgery, **S. aureus** and **S. epidermidis** are the most common organisms. After this time period, non-viridans streptococci are the most frequent organisms.

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6. Factors that have definitely been demonstrated to predispose to peptic ulcer disease include all of the following *except*:

- (a) Alcohol ingestion
- (b) Cigarette smoking
- (c) Type O blood – The answer should be C. (Page 175 indicates the answer is A)
- (d) Use of NSAIDs or aspirin

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4. Although objects do occasionally lodge or become impacted in the esophagus (particularly those with sharp edges), most will pass as a matter of course. Low-risk objects (blunt, small, nonmagnetic, ~~or button battery~~) can be watched in the esophagus for up to 24 hours. Once an object has passed the gastroesophageal junction, the probability of eventual passage is >90%. The foreign body usually arrives at the rectum in 3–5 days. As long as the patient is asymptomatic, management in these cases is expectant.

**Table 9:** Gram-Stain Findings with Common Organisms

Organism	Gram-Stain Findings
<i>Streptococcus pneumoniae</i>	Gram-positive, lancet-shaped cocci in pairs, PMNs
<i>Staphylococcus aureus</i>	Gram-positive cocci in clusters, PMNs
<del>Influenza</del> — <b>H. Influenza</b>	Gram-negative coccobacillus, PMNs
<i>Klebsiella</i> sp	Gram-negative rods, PMNs
<i>Legionella</i> sp	Few weakly gram-negative rods, many PMNs
Oral flora (aspiration)	Mixed gram-positive and -negative cocci and rods, PMNs
Atypicals, viral	Few bacteria, many PMNs, or monocytes

b. Clinical presentation

- (1) Suspect **neurogenic spinal** cord injury in:
  - (a) Patients with an altered or depressed mental status (including intoxicated patients with head or facial injuries)
  - (b) Patients with any focal neurologic deficits
  - (c) Significant mechanisms of trauma (especially high-speed motor vehicle collisions, falls, football injuries, and diving accidents)
  - (d) Patients with unexplained hypotension and associated paradoxical (relative) bradycardia (spinal shock)
  - (e) Elderly patients with suspected minor traumatic injuries

Question 14

Answer (b)

The limb appears **adducted, internally rotated**, and flexed.

24. A 60-year-old woman presents with the complaint of knee pain for one day. There is no history of trauma or similar pain in the past. Examination reveals a tender, warm, erythematous knee. Joint aspiration demonstrates cloudy fluid with 10,000 WBCs (>75% PMNs), normal glucose, and needle-shaped crystals that are ~~positively~~ **negatively** birefringent under polarized light. The most likely diagnosis is:

- (a) Gout**
- (b) Osteoarthritis
- (c) Pseudogout
- (d) Rheumatoid arthritis

28. Which of the following statements regarding compartment syndrome is inaccurate?

**All are accurate**

- (a) A compartment pressure of 30 mmHg makes a definitive diagnosis of compartment syndrome.

- (b) Initial management consists of removal of constricting dressings or casts (if present).
- (c) It can be caused by crush injuries, fractures, or constrictive dressings or casts.
- (d) The most commonly affected compartments are the anterior compartment of the lower leg and the volar compartment of the forearm.

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4. Treatment

- a. Remove constrictive dressing or cast (if present).
- b. Obtain immediate orthopedic consult and measure intercompartmental pressure.
- c. Surgical decompression via fasciotomy is indicated if the diastolic blood pressure minus the intercompartmental pressure is  $\leq$  30 mmHg.

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Scenario A

*Presentation:* An elderly man with a history of prosthetic hip replacement presents complaining of inability to walk or move the hip. The pain started with minimal trauma.

*Physical examination:* On physical examination, the leg is shortened, ~~adducted~~ abducted, and internally rotated.

What is the diagnosis?

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- (9) Other therapeutic modalities should be decided in consultation with the neurosurgeon.
  - (a) ~~Nimodipine~~ Nicardipine may reduce the risk and severity of vasospasm.
  - (b) Antifibrinolytics (aminocaproic acid) may prevent rebleeding; their use is decreasing because of the associated ischemic complications and the trend toward earlier surgical intervention.
  - (c) Mannitol or hypertonic saline should be started if patient is showing signs of  $\uparrow$  ICP.

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Scenario B

*Diagnosis:* temporal arteritis

*Diagnostic evaluation:* Diagnosis relies heavily on the clinical scenario. In women with unilateral headaches and jaw claudication, suspicion for temporal arteritis should be high. The evaluation should include a thorough ophthalmologic examination and erythrocyte sedimentation rate.

*Management:* Steroid therapy should be initiated in patients who have a diagnosis of temporal arteritis. Prednisone at 40–60 mg/kg per day should be sufficient and is customary. Good follow up with ophthalmology and rheumatology should be arranged. Admission is not necessary unless there are mitigating factors to discharge.

### III. GENITAL MASS LESIONS

#### A. Human papillomavirus

1. Etiology
  - a. ~~Herpes simplex virus~~ Human papilloma virus has >40 serotypes.
  - b. Linked to development of genital warts as well as cervical cancer

**Table 36:** Antidotes for Specific Poisons

Antidotes	Agents
N-Acetylcysteine	Acetaminophen
Antivenin CroFab <sup>®</sup>	Rattlesnakes, copperhead (rarely needed), water moccasin  Eastern coral snake, coral snake Black widow spider ( <i>Latrodectus</i> ) (antivenin rarely needed)
Anascorp <sup>®</sup>	Scorpion ( <i>Centruroides exilicauda</i> )
Atropine sulfate	Organophosphates/carbamates
Botulism antitoxin	<i>Clostridium botulinum</i>
Calcium gluconate	Hydrofluoric acid (topical, intradermal, intravenous, intra-arterial), calcium channel blockers (intravenous)
Calcium disodium EDTA	Lead
Cyproheptadine	Serotonin syndrome
Deferoxamine	Iron
Dextrose	Insulin/oral hypoglycemic agents
Digoxin Fab	Digoxin Cardiac glycoside plants (foxglove, oleander)
Dimercaprol (BAL)	Lead with encephalopathy (must be used with calcium disodium EDTA), mercuric salts and arsenic if GI tract compromised
Ethanol	Ethylene glycol, methanol
Flumazenil	Benzodiazepines
Folic acid	Methanol
Fomepizole (4-methylpyrazole)	Ethylene glycol, methanol
Glucagon	Calcium channel and $\beta$ -blockers
Glucarpidase	Methotrexate
Hydroxocobalamin	Cyanide
Insulin (high dose)	$\beta$ -blockers, calcium channel blockers
Idarucizumab	Dabigatran
L-carnitine	Valproic acid-induced hyperammonemia with

	mental status changes
Leucovorin (folinic acid)	Methotrexate
Methylene blue	Nitrites, nitrates, aniline dyes (methemoglobinemia)
Naloxone	Narcotics, diphenoxylate, propoxyphene
Nitrites (amyl nitrite, sodium nitrite)	Cyanide
Octreotide	Sulfonylureas
Oxygen (normobaric and hyperbaric)	Carbon monoxide
Physostigmine	Anticholinergic agents
Potassium iodide (KI)	Radioactive iodine
Pralidoxime (2-PAM)	Organophosphates
Protamine sulfate	Heparin
Prussian blue	Thallium salts, cesium salts
Pyridoxine (vitamin B <sub>6</sub> )	Ethylene glycol, INH, <i>Gyrometra esculenta</i> (false morel)
Silibinin	Amatoxin-induced mushroom poisoning ( <i>Amanita</i> sp)
Sodium bicarbonate	Salicylates, tricyclic antidepressants
Sodium thiosulfate	Cyanide
Succimer (2,3 dimercaptosuccinic acid, DMSA)	Lead, mercury, arsenic
Thiamine hydrochloride	Ethylene glycol
Vitamin K	Warfarin, long-acting anticoagulant rodenticides

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### C. Metabolic alkalosis

1. Definition:  $\uparrow$  pH ( $>7.45$ ) and  $\uparrow$   $\text{HCO}_3^-$  ( $>26$  mEq/L)
2. Most common reasons for a primary increase in blood bicarbonate concentration
  - a. Vomiting and nasogastric suctioning
  - b. Diuretic administration
  - c. Adrenocortical hormone excess
3. Metabolic alkalosis can be categorized as "chloride sensitive" or "chloride resistant."
  - a. Chloride-sensitive alkalosis (saline responsive): common
    - (1) Diuretics  $\rightarrow$  loss of  $\text{K}^+$  and  $\text{Cl}^-$   $\rightarrow$  replace with saline and potassium
    - (2) Vomiting and nasogastric suctioning  $\rightarrow$  loss of  $\text{H}^+$ ,  $\text{K}^+$ , and  $\text{Cl}^-$   $\rightarrow$  ( $\uparrow$  renal excretion)  $\rightarrow$  replace with saline. Vomiting is most likely the clinical scenario in a hypochloremic, hypokalemic metabolic **alkalosis**.
  - b. Chloride-resistant alkalosis (saline unresponsive): rare
    - (1) Mineralocorticoid excess  $\rightarrow$   $\uparrow$  renal absorption of  $\text{Na}^+$  and  $\text{HCO}_3^-$  with  $\uparrow$  renal excretion of  $\text{K}^+$ ,  $\text{H}^+$ , and  $\text{Cl}^-$   $\rightarrow$  replace with potassium
    - (2) Large amounts of potassium are usually required to reduce renal excretion of  $\text{H}^+$  and treat the underlying cause.

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Scenario A

*Diagnosis:* hyperosmolar nonketotic coma

*Diagnostic evaluation:* Laboratory studies show hyperglycemia, ketoacidosis, and hypokalemia.

Scenario B

*Diagnosis:* ~~isopropyl alcohol poisoning~~ Ethylene glycol poisoning

*Diagnostic evaluation:* Differential diagnoses include uremia, methanol poisoning, and ethylene glycol poisoning.

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- (2) Use of antivenin (one vial is usually sufficient)
  - (a) Antivenin is not used in all cases because:
    - i. The effects of black widow spider bites are self-limited with a low mortality rate; because use of antivenin has been associated with death, most patients are not given antivenin.
    - ii. The antivenin is equine-derived (pretesting for horse serum sensitivity is advised) and can therefore produce anaphylaxis. Serum sickness can also occur but is uncommon, because so little antivenin is used.
    - iii. The antivenin, when combined with  $\beta$ -adrenergic blockers, can produce anaphylactic reactions that are refractory to treatment.

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4. Diagnostic evaluation (usually useful only retrospectively)
  - a. Because serologic tests are often negative in the early phase of illness (results are not usually available during emergency department assessment and availability of specific tests vary from hospital to hospital), the diagnosis of RMSF is a clinical one. The triad of fever, headache, and rash, occurring late spring to early fall, is presumptive evidence for treatment and should not await positive serologic testing. The mortality rate remains high because of delay in starting appropriate antibiotic therapy.
    - (1) Laboratory findings of neutropenia, thrombocytopenia, increased liver function studies, and hyponatremia are suggestive.
    - (2) Indirect fluorescent antibody assay
      - (a) The most sensitive and specific test
      - (b) A titer >1:64 is diagnostic
    - (3) Indirect hemagglutination (second most sensitive and specific)
    - (4) The Weil-Felix, complement fixation, and latex agglutination tests are much less sensitive.

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3. Which of the following statements regarding the skin lesions of erythema multiforme are true?
- (a) They are typically red, raised, purpura.
  - (b) They may not be associated with Stevens-Johnson syndrome.
  - (c) They are generally very pruritic.
  - (d) They are classically located on the palms and soles, dorsum of the hands and feet, and on extensor surfaces of the extremities.

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8. Which of the following is true regarding arterial line placement?
- (a) Raynaud phenomenon is not a contraindication to placement of an arterial line in the radial artery.
  - (b) Radial artery pressures are more accurate than femoral in the presence of vasoconstriction.
  - (c) Radial and femoral sites have similar risks of limb ischemia and infection.
  - (d) ~~Anticoagulation~~ Anticoagulation is a strict contraindication to arterial line insertion.