


34 – Board Review Day 3

Speaker: Drs. Whitley (Moderator), Kotton, Dhanireddy, Ghanem, Rose, Thomas, and Tunkel



INFECTIOUS DISEASE
BOARD REVIEW
TWENTY TWENTY-ONE
ID BR 2021

Board Review: Day 3

Moderator: Dr. Whitley
Faculty: Drs. Kotton, Dhanireddy, Ghanem, Rose, Thomas, and Tunkel

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#31 45-year-old HIV infected man switched to monthly cabotegravir and rilpivirine injections. Aside from some pain in the injection sites he had no complaints.

However, his routine lab testing showed ALT 568 IU/ml and AST 672 IU/L and total bilirubin of 2.3 mg/dl.

Other labs weren't significantly changed from baseline.

He was in a stable relationship with one male partner and did not endorse using illicit drugs.

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#31 What test is most likely to explain the hepatitis?

- A) Cabotegravir metabolite level
- B) Rilpivirine level
- C) HCV RNA level
- D) HBV DNA level
- E) Electron microscopy of hepatocytes mitochondria

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#32 You are asked by your occupational health service about a 22-year-old incoming medical student who had never been vaccinated for HBV since he recently emigrated to the US.

At his initial visit to occupational medicine as a first-year student he reported having hepatitis B since birth which was never treated. His family immigrated to the US and his mother is the presumed source of infection.

He is otherwise well.

Occupational medicine reports that he is HBsAg positive, has an HBV DNA level of 8.2 log IU/ml, and an ALT of 22 IU/L.

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What is the best advice regarding the student's participation in clinical rotations now and in the future?

#32

- A) His HBV status is not relevant to his clinical rotations or career choice regardless of whether he is treated
- B) His HBV status should preclude him from an interventional career (e.g., surgery) regardless of whether he is treated
- C) He should be treated and restricted from clinical rotations until his HBeAg converts to negative at which point he can resume all activities
- D) He should be treated with an approved regimen and allowed to complete clinical training once his HBV DNA < 1000 IU/L when he can resume all clinical activity
- E) He should be treated and restricted from clinical rotations until his HBV DNA < 1000 IU/L but he should never be involved in interventional procedures (e.g., surgery)

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#33 A 35-year-old sexually active man has burning with urination and clear urethral discharge for the past two weeks.

Urine culture and urine NAAT for *Neisseria gonorrhoeae*, *Chlamydia trachomatis* and *Trichomonas vaginalis* are negative.

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#33 Urine PCR should be performed for which of the following?

- A) *Mycoplasma pneumoniae*
- B) *Mycoplasma genitalium*
- C) *Mycoplasma hominis*
- D) *Treponema pallidum*
- E) *Chlamydia pneumoniae*

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#34 A 35-year-old male agricultural specialist visited Zimbabwe for 3 weeks to assess farm productivity. One day after his return to the United States, he developed fever, headache, diffuse myalgias and joint pains in his hands, elbows, shoulders, knees, and feet. He had a macular non-pruritic rash on his face and neck that faded over several days. His fingers and wrists were swollen but not erythematous. His wrists were so sore he could not use his computer or carry his briefcase.

He stayed home from work for 4 days until his fever abated without therapy, but his joint pains persist 3 weeks later, and he consults you.

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#34 He relates that he took mefloquine weekly during his stay in India but stopped it when the fever and rash began.

On his exam he is not febrile and he has no rash, joint findings, or other abnormalities you can detect.

Laboratory:

- CBC and blood chemistries are normal.
- Malaria smear is pending.

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#34 The most likely cause of this man's illness was which of the following:

- A) Nipah virus
- B) Hepatitis A
- C) Chikungunya
- D) Mefloquine hypersensitivity
- E) Dengue

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#35 You are called by a family physician about a patient, a 17-year-old whom she saw two days earlier for severe sore throat and malaise of five days duration.

The patient was well until he developed the sore throat accompanied by low grade fever and "feeling tired and sick." He doesn't know anyone else who is sick. He is sexually active with a single partner and always uses condoms.

On exam, his temperature was 100.8 °F; pulse 86, BP 112/78. He had periorbital edema and bilateral anterior and posterior cervical nodes that were more prominent posteriorly. His throat was red with small exudates. The spleen tip was palpable.

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#35 A rapid strep test performed in the family physician's office was negative.

The doctor thought the young man had mononucleosis and ordered a CBC and Monospot test (heterophile antibody).

The WBC count was 12,000; there were 32% lymphocytes and 12% atypical lymphocytes and the platelet count was slightly low at 120,000.

The Monospot test was negative.

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#35 Which one of the following is most likely responsible for the young man's illness?

- A) Cytomegalovirus
- B) HIV
- C) Epstein-Barr virus
- D) Toxoplasma
- E) Human herpes virus 6

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#36 A 28-year-old female emergency room nurse cares for a child with fever and rash who is later determined to have measles. Because the diagnosis was not under consideration at the time of clinical presentation, the child was not placed on airborne precautions, and the nurse did not wear an N-95 respirator when caring for the patient.

The nurse is originally from Nigeria and prior MMR (measles-mumps-rubella) vaccination records are not readily obtainable.

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#36 You are asked to provide recommendations for post-exposure prophylaxis for the nurse. Which of the following would you advise?

- A) Vitamin A
- B) MMR vaccine and immunoglobulin (IG) within six days of exposure
- C) MMR vaccine within 72 hours of initial measles exposure, or immunoglobulin (IG) within six days of exposure
- D) Valacyclovir intravenously every 12 hours
- E) Ribavirin

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#37 A 27-year-old man with no significant past medical history presents complaining of a rash and “ringing” in both his ears.

He was well until one week earlier when he noticed a rash on his back and abdomen. The rash is not pruritic.

Five days prior to presentation, he noted “ringing” in his right ear followed shortly thereafter by similar symptoms in his left ear.

He denies any other complaints.

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#37 Physical examination reveals a macular non-blanching rash limited to his abdomen and back.

Anogenital and neurological examinations are unremarkable. There is no obvious hearing loss on examination.

However, an immediate evaluation by an otolaryngologist found bilateral sensorineural hearing loss. Abnormal laboratory results include a reactive serum treponemal CIA and a reactive serum RPR with a titer of 1:512.

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#37 Which of the following is the most appropriate next step?

- A) A single intramuscular dose of 2.4 MU of penicillin G benzathine
- B) An intramuscular dose of 2.4 MU penicillin G benzathine weekly for 3 consecutive weeks
- C) A CSF examination
- D) Doxycycline 200 mg orally twice daily for two weeks
- E) Intravenous aqueous penicillin G 18-24 million units daily for 10-14 days

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#38 A 35 y/o male reports that he spent this past week at a shelter where he was told there were several cases of active hepatitis A. You call the shelter and they confirm that they have diagnosed 6 cases among their clients during the past week.

Your patient feels well, has no complaints and a normal examination. He reports that he never received immunizations of any sort that he can remember.

You don't have ready access to serologic testing for hepatitis A antibody, so that screening is not an option even if you thought it were useful.

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#38 In order to protect him from hepatitis A, what would you recommend:

- A) Hyperimmune hepatitis A immune globulin
- B) Immune serum globulin
- C) Hepatitis A vaccine
- D) Both hepatitis A vaccine and immune serum globulin
- E) No post exposure prophylaxis

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#39 A 48-year-old with rheumatoid arthritis on TNF- alpha inhibitors presents in the Fall of 2016 for routine follow-up. He states he NEVER gets the influenza vaccine because he develops severe hives if he eats eggs and is immunosuppressed.

On further questioning he states he can eat baked goods cooked with eggs and has no allergic sequelae.

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#39 What would you advise this patient about influenza vaccination:

- A) He should be given the Live Attenuated Influenza Vaccine
- B) He may safely receive Inactivated trivalent or quadrivalent Influenza Vaccine
- C) He should not receive any influenza vaccine due to his egg allergy
- D) The only safe option is to receive Flucelvax (ccIV), the mammalian Cell Culture Inactivated Influenza Vaccine or Flublok (rIV), the Recombinant Influenza Vaccine

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#40 You are consulted to see a 31-year-old woman on the neurology service who was admitted yesterday after an apparent transient ischemic episode.

She was febrile on admission and reported having had fever for more than a week along with night sweats.

On review of systems, she noted a five-pound weight loss in the last week along with pain in both calf muscles after walking about a half mile.

She works in a shelter for homeless people.

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#40 On exam, she has a temperature of 101.6°F; pulse 100; BP 84/66. There is no rash and no murmur.

She is tender bilaterally over her carotid arteries and has diminished peripheral pulses throughout.

Her neurological exam is normal.

Blood cultures from admission are negative at 24 hours.

Chest x-ray and routine labs are normal except for a WBC count of 12,300 with 77% polymorphonuclear neutrophils.

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#40 Which one of the following is the most likely diagnosis?

- A) Culture-negative endocarditis
- B) Temporal arteritis
- C) Moyamoya disease
- D) Takayasu's arteritis
- E) Atrial myxoma

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#41 A 52-year-old homeless man who often lives in shelters is hospitalized in Boston for fever, chills, loss of appetite, and weakness in the left arm and leg.

He denies intravenous drug abuse, animal exposure, and receiving any form of medical attention or medications over the past year.

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#41 Physical examination reveals a pale disheveled man with a temperature of 38.3°C, several conjunctival petechiae, a small hemorrhagic lesion in the right retina, a grade 2/6 systolic ejection murmur, and a grade 2/6 diastolic decrescendo murmur heard along the left sternal border.

The spleen tip is palpable.

There are no skin lesions, but a nurse found some lice in his clothing.

Motor strength in the left arm and leg is diminished and the Babinski response is positive on the left.

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#41 A trans-thoracic echocardiogram reveals an oscillating mass on the non-coronary cusp of the aortic valve.

Three sets of blood cultures, each with 10 mL of blood for aerobic and anaerobic culture were drawn on the first and second hospital days and remain negative after 7 and 6 days of incubation, respectively.

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#41 The most likely cause of this patient's endocarditis is:

- A) *Coxiella burnetii*
- B) *Chlamydia (Chlamydia) psittaci*
- C) *Abiotrophia defectiva*
- D) *Bartonella quintana*
- E) *Histoplasma capsulatum*

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#42 A 25-year-old female with acute myelogenous leukemia is currently in complete remission and is being scheduled for an allogeneic stem cell transplantation in the near future.

The patient's CMV IgG is positive, and her identified donor's CMV IgG is negative.

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#42 Which of the following would you recommend regarding prevention of CMV infection post-transplantation, assuming her serum CMV PCR is being monitored weekly and remains undetectable?

- A) Letermovir prophylaxis
- B) Brincidofovir prophylaxis
- C) Acyclovir prophylaxis
- D) Monthly IVIG prophylaxis
- E) Valganciclovir prophylaxis

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#43 A 75-year-old man presents with a 2-day history of fever, dysphasia, and personality change. One day prior to admission, his family noted that he was lethargic.

On presentation, vital signs were temperature 101F, pulse 110, respirations 14, and blood pressure 120/70 mmHg.

He was unresponsive.

Neck was supple and there were no obvious focal neurologic abnormalities.

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#43 The peripheral WBC was 9,000/mm³.

- In the emergency room, the patient was treated empirically with vancomycin, ampicillin, ceftriaxone, and acyclovir.
- He was then sent for an emergent non-contrast CT scan of the head, which was negative. Cerebrospinal fluid (CSF) examination revealed a WBC 100/mm³ (98% lymphs), glucose 80 mg/dL, and protein 100 mg/dL.
- CSF Gram stain was negative.

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#43 Which of the following tests will most likely identify the etiology of the patient's encephalitis?

- A) CT scan of the head with contrast
- B) Brain MRI
- C) Serum IgG antibody
- D) CSF IgG antibody
- E) CSF polymerase chain reaction

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#44 A 30-year-old man is thrown from his motorcycle and suffers a depressed skull fracture with intracranial hemorrhage.

He is taken to the OR where the hemorrhage is evacuated. He initially does well, but 5 days later develops fever of 39C, worsening headache and transiently loses consciousness.

A non-contrast CT of the head reveals stable appearance of the hemorrhage. Cerebrospinal fluid analysis shows a WBC count of 1500/mm³ (95% segs), RBC count of 1000/mm³, glucose of 40 mg/dL, and protein of 300 mg/dL.

The Gram stain is negative.

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#44 Which of the following should be initiated?

- A) Vancomycin + cefepime
- B) Vancomycin + trimethoprim-sulfamethoxazole
- C) Cefepime + gentamicin
- D) Meropenem
- E) Supportive care as this is a chemical meningitis

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#45 A 42-year-old man from New York City developed fever, dyspnea, and increasing pulmonary infiltrates four weeks post-cadaveric single lung transplant.

He had been receiving standard 3 drug immunosuppression, but has also required high dose steroids for acute organ rejection.

He received standard anti-infective prophylaxis.

On bronchoscopy, diffuse alveolar hemorrhage was noted from both lungs.

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#45 Biopsy of the transplanted lung showed no evidence of rejection.

BAL stains for bacteria, fungi and mycobacteria were negative. PCR of blood for CMV was negative.

The transplant center was notified that the recipient of the other lung had developed a similar syndrome. The donor was a 20-year-old recent immigrant from Guatemala who died of a gunshot wound.

His mother thought he had been healthy.

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#45 Assuming this infection was acquired from the transplanted lung, which organism appears most likely:

- A) *Balamuthia mandrillaris*
- B) Rabies
- C) *Cryptococcus neoformans*
- D) *Nocardia brasiliensis*
- E) *Strongyloides stercoralis*