

49 – Board Review Day 4

Speaker: Drs. Gulick (Moderator), Bloch, Dorman, Dupont, Maldarelli, Saag, and Weinstein



INFECTIOUS DISEASE BOARD REVIEW
TWENTY TWENTY-ONE
ID BR 2021

Board Review: Day 4

Moderator: Dr. Gulick
Faculty: Drs. Bloch, Dorman, Dupont, Maldarelli, Saag, Weinstein



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#46 An 88-year-old man who lives in a nursing home in a large U.S. city develops diarrhea and vomiting.

He has not recently taken antibiotics and is not on a proton pump inhibitor.

He develops diarrhea and is taken to a hospital where he is found to have advanced renal failure and ventricular arrhythmia and despite fluid therapy and cardiovascular drugs he dies 12 hours after admission.



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#46 Which of the following is the most likely cause of his enteric syndrome and death?

- A) Norovirus
- B) *Aeromonas*
- C) *Listeria monocytogenes*
- D) *Shigella*
- E) *Campylobacter*



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#47 A 40-year-old healthy traveler to Nepal develops diarrhea consisting of passage of 2 soft stools/d with mild cramps. This has persisted for 9 days.

She is able to do what she came to do but needs to know where bathrooms are located at all times.



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#47 What would you recommend she do about her enteric syndrome?

- A) Ciprofloxacin 500 mg bid for 3 days
- B) Azithromycin 1,000 mg single dose
- C) Rifaximin 200 mg tid for 3 days
- D) Fluids (soups, broth, non-carbonated drinks) only with or without loperamide she has with her
- E) No therapy



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#48 A 44-year-old man recently diagnosed with HIV is concerned about drug side effects and wants to start an ART regimen with the “lowest number of drugs possible.”

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#48 Which of the following initial regimens is optimal for his initial therapy?

- A) bictegravir monotherapy
- B) boosted darunavir + lamivudine
- C) dolutegravir/lamivudine
- D) dolutegravir/rilpivirine

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#49 A 36-year-old female is referred to ID clinic from the Gynecology Department, where she had presented with 6 months of abdominal discomfort and swelling, accompanied by 12 lb weight loss and fevers.

She was originally from Brazil and had moved to the US four months prior.

She has severe, poorly controlled asthma and has received several steroid tapers over the past year. Evaluation by the Gynecology team had included CA-125, which was elevated at 608 U/ml (normal range <35 U/ml).

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#49 CT imaging of the abdomen and pelvis showed ascites and omental caking.

Laparoscopy was performed and on visual inspection there was diffuse studding of intraperitoneal surfaces with 2-3 mm tan nodules.

A biopsy of affected material was obtained and showed non-caseating granulomas without evidence of malignancy; cultures were set up and are in progress.

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#49 What is the most likely mode of transmission of the infection?

- A) Bite of a triatomine (kissing bug) insect
- B) Bite of a sand fly
- C) Inhalation of airborne bacteria
- D) Sexual transmission of a spirochete

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#50 An 18-year-old male is referred to you for evaluation and management of a positive QuantiFERON-TB Gold test. He was born in India and is in the U.S. as a high school exchange student. He reports no significant past medical history, and he feels entirely well without cough, fevers, or weight loss.

To his knowledge he has never been in contact with anyone with pulmonary TB.

Records from the referring provider document a negative HIV test, normal CBC and liver chemistries, and a normal chest X-ray, all performed 2 weeks ago.

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#50 What is the best next step?

- A) Recommend treatment for latent TB infection with 2 months of rifampin and pyrazinamide
- B) Recommend treatment for latent TB infection with 12 weeks of once weekly isoniazid and rifapentine
- C) Perform a tuberculin skin test to make sure that this is not a false-positive QuantiFERON-TB Gold test
- D) Initiate TB treatment with rifampin, isoniazid, pyrazinamide, ethambutol
- E) No further action needed since the positive QuantiFERON-TB Gold test most likely represents immunological cross-reactivity to neonatal vaccination with Bacille Calmette-Guerin (BCG)

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#51 A 71 y/o man with HIV disease transfers care to you with a history of taking and failing “nearly all HIV medications including T20 (enfuvirtide)”.

He currently takes tenofovir alafenamide (TAF)/emtricitabine (FTC) + etravirine + darunavir + ritonavir with a CD4 15 and HIV RNA 233,140 copies/ml. You send an HIV genotype, phenotype, and tropism test. The tropism test returns “dual/mixed virus”.

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#51 In addition to optimizing his antiretroviral regimen, you recommend:

- A) Adding maraviroc
- B) Adding double-dose maraviroc
- C) Adding enfuvirtide
- D) Adding ibalizumab

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#52 A 22 y/o man is found HIV+ with a CD4 344 and HIV RNA 16,000 copies/ml and starts abacavir (ABC)/lamivudine (3TC)/dolutegravir (DTG) at an outside clinic.

After several days, he develops a rash, nausea and vomiting for which he does not seek medical attention. He discontinues his medications and feels much better.

Three months later, after urging from his mother, he presents to you now to restart HIV therapy.

He is asymptomatic, has a normal physical exam, CD4 322, and HIV RNA 15,000 copies/ml.

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#52 What do you advise regarding ART?

- A) Repeat CD4 and HIV RNA
- B) Check G6PD before restarting ART
- C) Check HLA-B*5701 before restarting ART
- D) Restart ABC/3TC/DTG with instructions to call clinic for any symptoms

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#53 Over a 3-week period, 5 patients in a 12-bed ICU have infections with a carbapenem-resistant *Klebsiella pneumoniae* (KPC): Two have symptomatic urinary tract infections, 2 have ventilator-associated pneumonia, and 1 has a line-related bacteremia. These are the only KPC infections recognized in this ICU in the past 6 months.

Whole genome sequence (WGS) analysis of the isolates shows that four are nearly identical and one probably genetically unrelated.

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#53 The most likely epidemiologic explanation for these infections is that this cluster represents which of the following:

- A) Is a pseudoepidemic
- B) Results from lapses in infection control
- C) Results from common source medication contamination
- D) Represents a water-borne outbreak
- E) Represents a food-borne outbreak

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#54 A 56-year-old female presents c/o sore throat. She was in her usual state of health until 1 day prior to admission when she noted pain on swallowing and myalgias.

A rapid strep test at a walk-in clinic was negative and she was given a presumptive diagnosis of viral pharyngitis. That evening the pain progressed and she presented for ER evaluation.

She lives in rural Idaho and has well water. She raises chickens and has a pet goat.

She has not travelled outside of the region in the last year. She notes exposure to her 2-year-old grandson who had a fever the previous week.

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#54 On presentation she is afebrile and vitals signs are stable. She is breathing comfortably on room air without stridor however she is spitting into a cup next to the bed because it hurts to swallow.

Oropharyngeal exam shows good dentition, normal mucosa and no tonsillar enlargement or inflammation. There is no cervical swelling or lymphadenopathy.

White blood cell count is 15.9, other labs are unremarkable.

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#54 Which of the following is the most likely diagnosis in this patient?

- A) Ludwig's angina
- B) Streptococcal pharyngitis
- C) Diphtheria
- D) Pharyngeal tularemia
- E) Epiglottitis

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#55 A previously healthy 29yo female presents with 1 week of fevers, chills, and headache. She decided to seek medical care after she noted dark discoloration of her urine.

She lives in Connecticut and has a vacation home on Martha's Vineyard.

She is an avid hiker and notes many tick and mosquito bites in the last month.

She has traveled extensively for work, including a trip to South Africa 1 year previously where she visited a game preserve.

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#55 On physical exam, her temperature is 102.8 F, heart rate is 118 bpm, and BP is 125/68. Otherwise, exam is unremarkable, with no rash, photophobia, or nuchal rigidity.

Laboratory studies include:

- WBC=5.8
- H/H=7.4/22
- Platelets=97
- AST/ALT=127/119
- Alk phos=384
- Total Bilirubin=1.7
- Haptoglobin <8
- LDH 784
- A lumbar puncture was done, with 1 WBC

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#55 A Giemsa stain of a thin blood smear is below:

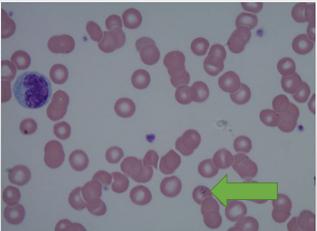


Photo courtesy of Alex Maris, MD PhD

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#55 Which of the following pathogens is the most likely cause of her illness?

- A) *Plasmodium falciparum*
- B) Powassan virus
- C) *Babesia microti*
- D) *Anaplasma phagocytophilum*
- E) *Plasmodium knowlesi*

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#56 A 28 y/o HIV negative woman with an HIV+ male sexual partner asks about taking HIV pre-exposure prophylaxis (PrEP).

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#56 Which do you recommend?

- A) None, PrEP not indicated
- B) Daily tenofovir disoproxil fumarate (TDF)/emtricitabine
- C) Episodic TDF/emtricitabine
- D) Daily tenofovir alafenamide (TAF)/emtricitabine
- E) Episodic TAF/emtricitabine

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#57 26-year-old HIV+ man on his first ART regimen, tenofovir (TDF)/emtricitabine + raltegravir, for 2 years.

HIV RNA originally 203,000 copies/ml, then decreased to <50 copies/ml by 4 months.

On his most recent routine lab tests, HIV RNA was 13,900 copies/ml, repeated 2 weeks later after adherence counseling at 11,400 copies/ml.

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#57 What lab test(s) would you now order?

- A) Drug level testing
- B) Genotype testing (reverse transcriptase/protease and integrase)
- C) Phenotype testing (reverse transcriptase/protease and integrase)
- D) Genotype and phenotype testing (reverse transcriptase/protease and integrase)
- E) CCR5 tropism testing

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#58 A 23 y/o man presents to the emergency room asking for “HIV PEP” (post-exposure prophylaxis).

He states that he had receptive anal intercourse 2 hours ago with a male partner with unknown HIV status and that “the condom broke.”

He is in good health and a rapid HIV antigen/antibody test is negative.

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#58 Which do you recommend?

- A) No PEP – low-risk exposure
- B) Start PEP when HIV drug-resistance testing results available
- C) Start PEP now with zidovudine/lamivudine + lopinavir/ritonavir
- D) Start PEP now with tenofovir (TDF)/lamivudine + dolutegravir
- E) Start PEP now with single-dose nevirapine

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#59 A 32-year-old man returns for routine follow up in the HIV clinic and is found to have new elevations in his liver function tests.

He has no complaints and his physical exam is normal.

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#59 Lab evaluation from this visit reveals:

- Normal electrolytes
 - AST 130 u/ml (35 u/ml last visit)
 - ALT 180 u/ml. (25 u/ml last visit)
 - Bilirubin 0.8 mg/dl
 - Alk phos 110 mg/dl
- RPR non-reactive
- Urine / rectal NATs negative for GC and Chlamydia

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#59 He has been on BIC / FTC / TAF (Biktarvy-bictegravir, emtricitabine & tenofovir alafenamide) for the last 2 years with undetectable virus.

His last CD4 count 1 year ago was 855 cells /ul.

Three years ago he was diagnosed with HCV (no evidence of cirrhosis on fibroscan at that time) and he received treatment with sofosbuvir and ledipasvir for 12 weeks, achieving an undetectable HCV RNA at month 4 post-treatment.

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#59 At the time of his HCV treatment he was vaccinated for Hepatitis A and Hepatitis B.

His post vaccine hepatitis B surface antibody (anti-HBs) titer was >10 milli-international units/mL.

He reports frequent sexual activity with same sex partners; at least 4 – 6 different partners per month over the last 5 months.

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#59 Which of the following is most likely responsible for his increased liver enzymes:

- A) Hepatitis A infection
- B) Hepatitis B infection
- C) Hepatitis C infection
- D) Drug induced liver injury (DILI)
- E) Cirrhosis

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#60 A 62-year-old man with newly diagnosed HIV infection (HIV RNA 326,000 copies/ml, CD4 205 cells/uL) starts antiretroviral therapy with tenofovir alafenamide (TAF)/emtricitabine/bictegravir.

At 3 months, this patient had an HIV RNA is <20 copies/ml and CD4 211 cells/uL.

At 6 months, HIV RNA <20 copies/ml and CD4 203 cells/uL. He's concerned about his CD4 cell count.

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#60 What do you recommend?

- A) Continue present ART regimen
- B) Change TAF/emtricitabine to ABC/lamivudine
- C) Change bictegravir to darunavir/ritonavir
- D) Add darunavir/ritonavir
- E) Start filgrastim (G-CSF)