BR1 Board Review - Day 1

Moderator - Robin Patel, MD

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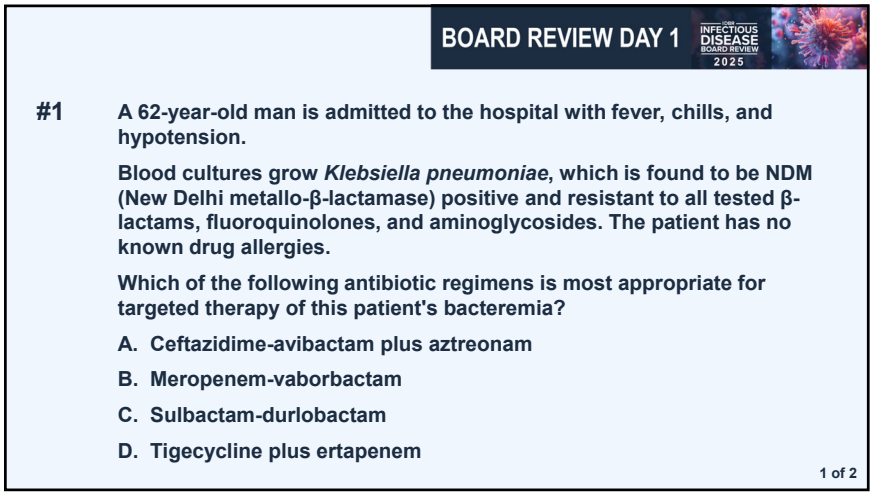

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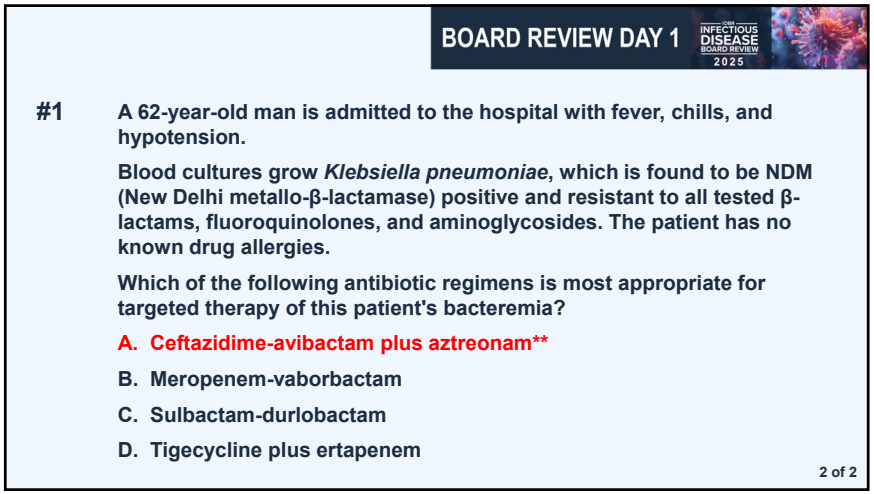

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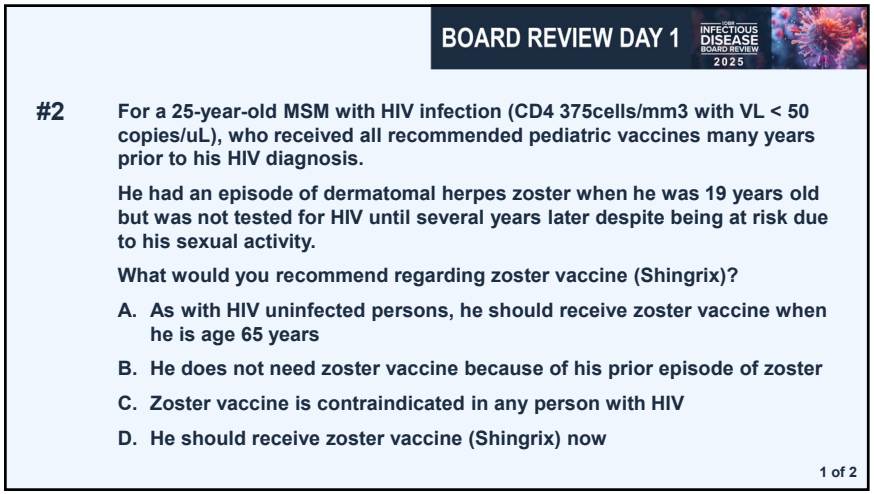

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BOARD REVIEW DAY 1

#2 For a 25-year-old MSM with HIV infection (CD4 375cells/mm3 with VL < 50 copies/uL), who received all recommended pediatric vaccines many years prior to his HIV diagnosis.

He had an episode of dermatomal herpes zoster when he was 19 years old but was not tested for HIV until several years later despite being at risk due to his sexual activity.

What would you recommend regarding zoster vaccine (Shingrix)?

A. As with HIV uninfected persons, he should receive zoster vaccine when he is age 65 years

B. He does not need zoster vaccine because of his prior episode of zoster

C. Zoster vaccine is contraindicated in any person with HIV

D. He should receive zoster vaccine (Shingrix) now**

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BOARD REVIEW DAY 1

#3 A 45-year-old businessman was well until five days before presentation when, in mid-spring, he developed a headache. Two days later, he developed a non-productive cough, throat discomfort and his eyes became watery and red.

On his fifth day of illness, he developed a rash on face and then spread to his upper arms and chest.

He lived in the Midwest with his wife, teenagers, and dog. He was monogamous and denied illicit drug use. He travels throughout the US for work.

His temperature was 101 ºF. Physical exam showed a diffuse erythematous, blanching maculopapular rash on face, trunk and arms and conjunctival injection. The exam was otherwise normal.

Labs indicated WBC of 3300 cells per cubic mL, platelet count was normal.

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BOARD REVIEW DAY 1

#3

Below is a picture of a rash in a different patient with the same diagnosis:

Which one of the following is the most likely diagnosis?

A. Syphilis

B. Scarlet fever

C. Parvovirus infection

D. Measles

E. Rocky mountain spotted fever

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BOARD REVIEW DAY 1

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Below is a picture of a rash in a different patient with the same diagnosis:

Which one of the following is the most likely diagnosis?

A. Syphilis

B. Scarlet fever

C. Parvovirus infection

D. Measles**

E. Rocky mountain spotted fever

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BR1 Board Review - Day 1

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BOARD REVIEW DAY 1

#4 A 55-year-old female with underlying acute myelogenous leukemia underwent a matched unrelated donor allogeneic hematopoietic cell transplant (HCT) 12 months prior, complicated by chronic graft versus host disease (GVHD).

Systemic GVHD therapies have included steroids, ruxolitinib, sirolimus and more recently belumosudil. Her chronic GVHD in the past has involved her skin, gastrointestinal tract, and lungs.

The patient had been intermittently lost to follow-up and now presents with multiple months of worsening shortness of breath, cough, sputum production and low-grade fevers. She has discontinued all her medications.

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BOARD REVIEW DAY 1

#4 Cross-sectional imaging of the chest (shown below) demonstrated progressing, multifocal pulmonary consolidation and cavitation. Expectorated sputum and bronchoalveolar lavage cultures demonstrate only *Mycobacterium avium* complex (MAC) and transbronchial biopsy demonstrates granulomatous inflammation with numerous acid-fast bacilli seen.

Antimicrobial susceptibility demonstrates macrolide and amikacin-susceptible MAC and the patient is started on oral azithromycin, ethambutol and rifabutin plus eight weeks of thrice weekly IV amikacin.

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BOARD REVIEW DAY 1

#4 Assuming the patient tolerates her anti-MAC regimen, which of the following statements is most appropriate regarding the total duration of MAC therapy?

A. Azithromycin, ethambutol and rifabutin should be continued 4 weeks beyond cessation of the IV amikacin at 8 weeks, for a total of 12 weeks of total therapy
B. Azithromycin, ethambutol and rifabutin therapy should be continued for 6 months
C. Azithromycin, ethambutol and rifabutin should be continued for 6 months after conversion of respiratory cultures from positive to negative
D. Azithromycin, ethambutol and rifabutin should be continued for at least 12 months after conversion of respiratory cultures from positive to negative
E. None of the above statements are correct as this patient will not benefit from MAC treatment

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BOARD REVIEW DAY 1

#4 Assuming the patient tolerates her anti-MAC regimen, which of the following statements is most appropriate regarding the total duration of MAC therapy?

A. Azithromycin, ethambutol and rifabutin should be continued 4 weeks beyond cessation of the IV amikacin at 8 weeks, for a total of 12 weeks of total therapy
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C. Azithromycin, ethambutol and rifabutin should be continued for 6 months after conversion of respiratory cultures from positive to negative
D. **Azithromycin, ethambutol and rifabutin should be continued for at least 12 months after conversion of respiratory cultures from positive to negative****
E. None of the above statements are correct as this patient will not benefit from MAC treatment

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BR1 Board Review - Day 1

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BOARD REVIEW DAY 1

#5 A 24-year-old male with acute myelogenous leukemia (absolute neutrophil count =0 for the past 7 days) has the acute onset of fever, cough, shortness of breath and substantial hypoxemia. Chest Xray shows new multilobar pneumonia

Pseudomonas aeruginosa is recovered from bronchoalveolar lavage and two blood cultures.

The antibiogram is as follows:

Antibiotic	MIC	Interpretation
Amikacin	> 8 µg/mL	R
Aztreonam	> 16 µg/mL	R
Cefepime	> 16 µg/mL	R
Ceftazidime	> 16 µg/mL	R
Ciprofloxacin	> 2 µg/mL	R
Colistin	2 µg/mL	I
Gentamicin	> 8 µg/mL	R
Meropenem	16 µg/mL	R
Piperacillin/tazobactam	> 64/4 µg/mL	R
Tobramycin	> 8 µg/mL	R

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BOARD REVIEW DAY 1

#5 Which one of the following antibiotics is most likely to be active and clinically effective against DTR-P. aeruginosa infections?

A. Ceftolozane-tazobactam
B. Sulbactam-durlobactam
C. Meropenem-vaborbactam
D. Polymyxin/Colistin

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BOARD REVIEW DAY 1

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C. Meropenem-vaborbactam
D. Polymyxin/Colistin

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BOARD REVIEW DAY 1

#6 A 39-year-old male has been in the ICU for weeks following a severe motor vehicle accident involving extensive burns and prolonged intubation.

He has been making progress with rehabilitation, afebrile with a tracheostomy but on no antibiotics for the prior 10 days, when he develops a new fever, hypoxemia and multifocal infiltrates.

The patient is started on vancomycin and cefepime.

Endotracheal aspirate and three blood cultures grow *Acinetobacter baumannii.*

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BR1 Board Review - Day 1

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BOARD REVIEW DAY 1

#6 What empiric therapy would you start pending susceptibility testing?

A. Ceftolozane-tazobactam
B. Meropenem-aztreonam
C. Colistin
D. Sulbactam-durlobactam
E. Meropenem-cilastatin-relebactam

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BOARD REVIEW DAY 1

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C. Colistin
D. Sulbactam-durlobactam**
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BOARD REVIEW DAY 1

#7 A 65-year-old patient with HIV infection (CD4 = 50 cells/uL and VL=300,00 copies/mm3) comes to your clinic for evaluation and management. He recently immigrated to the US from Haiti.

The patient was never vaccinated in Haiti or subsequently.

His risk factor HIV is men-having-sex with men. He is frequently undomiciled.

As you make a list of vaccine(s) which you have decided to administer, which will need follow up titers to demonstrate serologic response?

A. Zoster vaccine
B. Pneumococcal and meningococcal vaccines
C. Mpox vaccine
D. Hepatitis A and Hepatitis B vaccines
E. RSV and Influenza vaccines

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BOARD REVIEW DAY 1

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D. Hepatitis A and Hepatitis B vaccines**
E. RSV and Influenza vaccines

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BR1 Board Review - Day 1

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BOARD REVIEW DAY 1

#8

A 23-year-old man presented to the emergency department with 18 days of severe sore throat, not improving despite injection of ceftriaxone and a course of azithromycin given him in emergency room visits 2 and 14 days prior.

Rapid strep tests on a throat swab had been negative at prior visits.

In addition, four pustular lesions had appeared in the prior two days, scattered over his trunk and extremities. He felt feverish at night but had not taken his temperature.

He lived in downtown Washinton DC, worked in retail, had sex with men and had no recent travel, medications, or illicit drugs.

On exam, he had severe tonsilitis, temperature of 38.5C, prominent submental lymph nodes and four skin lesions like the one shown below.

His routine labs were normal.

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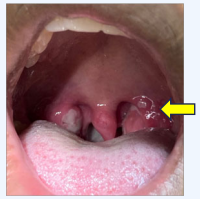
BOARD REVIEW DAY 1

#8



Which of the following is most likely to be useful?

A. Throat swab

B. Rapid HIV test

C. Urine NAAT

D. Serology for syphilis

E. Blood culture

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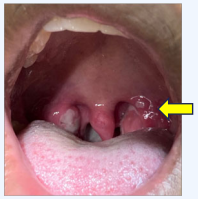
BOARD REVIEW DAY 1

#8



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B. Rapid HIV test

C. Urine NAAT

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BOARD REVIEW DAY 1

#9

A 54-year-old man presents with a two-day history of increasing erythema, swelling, warmth, and mild tenderness in in the skin of his left lower leg.

No swelling, fluctuance, purulence, or bullae noted.

He has a mild fever (100.4°F) but no tachycardia, no respiratory distress. No chills, nausea, or vomiting. Denies any known injury, insect bite, or wound.

On exam, no infection of the interdigital spaces is seen.

No history of prior cellulitis or venous insufficiency. He takes no chronic medications.

Six months ago, he experienced itchy, raised, red welts on his arms within a few hours of beginning a course of amoxicillin for acute bacterial sinusitis.

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BOARD REVIEW DAY 1

#9 Which of the following would be the best therapeutic approach?

A. Cephalexin 500 mg po q6h (no skin testing)
B. Penicillin skin testing. If no reaction, cephalexin 500 mg po q6h
C. Cephalexin skin testing. If no reaction, cephalexin 500 mg po q6h.
D. Clindamycin 300 mg po q8h
E. Doxycycline 100 mg po q12h

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BOARD REVIEW DAY 1

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D. Clindamycin 300 mg po q8h
E. Doxycycline 100 mg po q12h

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BOARD REVIEW DAY 1

#10 A 69-year-old female was seen because the nurse noted a new skin lesion. The patient was hospitalized for fever, found due to Candia parapsilosis bacteremia, treated with caspofungin for the last three days.

She was day 87 post allogeneic stem cell transplant with chronic graft versus host disease causing colitis, for which she was receiving prednisone 60 mg, sirolimus, daclizumab and rituximab.

She was also receiving filgrastim for chronic neutropenia (WBC 11600. ANC 1000). One exam, she complained of fatigue and was not aware of six skin lesions on her extremities and abdomen.

Vital signs were temp 37.4C, pulse 121, BP 106/67.

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BOARD REVIEW DAY 1

#10

Which is the most likely cause of skin lesions?

A. Ecthyma gangrenosum
B. Pyoderma gangrenosum
C. Sweet syndrome
D. Disseminated herpes zoster
E. Nontuberculous mycobacteriosis

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BR1 Board Review - Day 1

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BOARD REVIEW DAY 1

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B. Pyoderma gangrenosum
C. Sweet syndrome
D. Disseminated herpes zoster
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BOARD REVIEW DAY 1

#11 A 30-year-old female with a cardiac transplant at age 4 for a hypoplastic heart has had multiple cardiac procedures.

She presents to the Emergency Room with fever, rigors and hypotension.

Cultures of blood and bronchoalveolar lavage grow *Klebsiella pneumoniae* with the following antibiogram.

Bla-kpc is present.

Antibiotic	MIC	Interpretation
Amikacin	> 8 µg/mL	R
Aztreonam	> 16 µg/mL	R
Cefepime	> 16 µg/mL	R
Ceftazidime	> 16 µg/mL	R
Ciprofloxacin	> 2 µg/mL	R
Ertapenem	2 µg/mL	R
Gentamicin	> 8 µg/mL	R
Meropenem	8 µg/mL	R
Piperacillin/tazobactam	> 64 µg/mL	R
Tobramycin	> 8 µg/mL	R

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BOARD REVIEW DAY 1

#11 For this KPC producing organism, what would you recommend for treatment?

(assuming NDM and OXA-48 are rare in your institution)

A. Ceftolozane-tazobactam
B. Meropenem-aztreonam
C. Meropenem-vaborbactam
D. Ceftazidime-gentamicin
E. Sulbactam-durlobactam

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BOARD REVIEW DAY 1

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D. Ceftazidime-gentamicin
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BR1 Board Review - Day 1

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BOARD REVIEW DAY 1

#12 A 32-year-old man (injection drug user) with MRSA tricuspid valve endocarditis is prescribed six weeks of vancomycin. The hospital can perform vancomycin AUC_{24} monitoring as well as trough-only monitoring.

The patient is 5'11", 166 pounds (75 kg). Serum creatinine is 0.8 mg/dL. Estimated creatinine clearance (using the Cockcroft-Gault equation) is >120 mL/min.

A loading dose of vancomycin 2 gm IV (infused over 2 hours) is administered, followed by 1 gm IV (infused over 1 hour) q12h.

A peak and trough concentration are measured before and after the fourth maintenance dose. The peak is 21.2 µg/mL, trough is 8 µg/mL. His calculated AUC_{24} is 341 µg/mL x hr. The target AUC_{24} is 400-600 µg/mL x hr.

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BOARD REVIEW DAY 1

#12 What would be the appropriate management approach?

A. Change vancomycin dose to 2 gm IV (infused over 2 hr) q12h
B. Change vancomycin dose to 1.5 gm IV (infused over 1.5 hr) q12h
C. The prescribed vancomycin dose is appropriate
D. Repeat the AUC_{24}, as the patient is not yet at steady state
E. AUC_{24} monitoring is inappropriate for this condition

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BOARD REVIEW DAY 1

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E. AUC_{24} monitoring is inappropriate for this condition

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BOARD REVIEW DAY 1

#13 One of your longstanding HIV patients comes to see you in HIV clinic. She excitedly reports that she just got a volunteer position in your hospital that will entail visiting patients with cancer to share her experiences as a cancer survivor.

She is 72 years old, used to work as an insurance executive, survived an episode of breast cancer 20 years ago (managed with mastectomy, chemotherapy, and hormone therapy), and has well-controlled HIV (CD4 count 513, viral load <assay).

She requests a copy of her immunization records to submit to the hospital so that she can begin her volunteer work.

You review her records and note that she has not been vaccinated against measles.

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BOARD REVIEW DAY 1

#13 Which of the following would you do?

A. Provide her with a letter stating that she was born before 1957 and therefore does not need to get measles vaccine

B. Provide her with a letter stating that she has HIV and therefore measles vaccine is contraindicated

C. Provider her with a letter stating that she has a history of cancer and therefore measles vaccine is contraindicated

D. Provider her with a letter stating that has HIV and a history of cancer and therefore measles vaccine is contraindicated

E. Vaccinate her with MMR

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BOARD REVIEW DAY 1

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D. Provider her with a letter stating that has HIV and a history of cancer and therefore measles vaccine is contraindicated

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BOARD REVIEW DAY 1

#14 A 58-year-old liver transplant recipient (transplant 3 months ago) on active immunosuppression (tacrolimus and prednisone) has a significant exposure to measles one day earlier.

He had a single dose of measles vaccine in the late 1960s.

Prior to transplant, he tested seronegative for measles IgG, but there wasn't enough time before Transplant to safely immunize him.

What do you recommend?

A. Acyclovir prophylaxis for two weeks

B. Ribavirin prophylaxis for two weeks

C. Intravenous immunoglobulin (IVIG) 500 mg/kg

D. Remdesivir for four weeks

1 of 2

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BOARD REVIEW DAY 1

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BOARD REVIEW DAY 1

#15 A patient with well controlled HIV (viral load less than 50 copies/ml) for the past year inquires about switching from dolutegravir-lamivudine-tenofovir (TDF) because he had read about bone loss with this regimen.

Changing to dolutegravir-rilpivirine would be relatively contraindicated if this patient had which of the following issues?

A. Taking atorvastatin
B. Positive HBV surface antibody positive
C. Taking omeprazole
D. Archived M84V mutation
E. Remote history of efavirenz use

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BOARD REVIEW DAY 1

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