**2016 ACCP StuNews November Case**

**Reviewed by 2016 ACCP Clinical Pharmacy Exam Panel**

Vignette: A 33-year-old woman presents to the indigent county health clinic with a 4-day history of burning on urination and a 2-day history of recurrence of her genital herpes. On physical examination, the medical resident notes occasional coughing with blood-streaked sputum.

Past Medical History: The patient tested HIV positive 3 years ago when she presented with a sore on her labia and was given a diagnosis of (and treated for) primary syphilis. She receives care at this clinic, but she has repeatedly declined treatment for HIV. She has herpes recurrences about every other month.

Social History: The patient admits being a sex worker for the past 10 years and declines any offer for job/skill training programs. She admits that she uses protection during sex only when her clients request it.

Tobacco: 20-year history; alcohol: 4–5 strong cocktails 5–7 nights a week; denies using any recreational/illicit drugs for the past 3 years

Current Medications: Acyclovir 800 mg orally twice daily x 5 days during an outbreak (last filled 1 year ago); trimethoprim/sulfamethoxazole 1 tablet orally every other day (not prescribed, sharing a friend’s prescription); ibuprofen 200 mg 2 tablets as needed for headache/hangover

Allergies: Cat dander

Vital Signs: Height 168 cm; weight 50 kg; HR 82 beats/minute; BP 124/76 mm Hg; Temp 100.6°F (38.1°C); RR 25 breaths/minute

Laboratory Values: Urine: + *Neisseria gonorrhoeae* (by NAAT [nucleic acid amplification test] assay); sputum: acid-fast bacilli positive, mycobacterial species pending; BUN/SCr ratio: 30 mg/dL/1.5 mg/dL (10.7 mmol/L/132.6 micromoles/L); WBC: 16 x 103 cells/mm3 (16 x109/L)- with left shift; CD4: 102 cells/mL; HIV-RNA viral load: 257,250 copies/mL; HIV genotype from 2 years ago: wild-type virus; rapid plasmin reagin (RPR): 1:1 (no change over the past 2 years)

Other Laboratory Results: WNL (within normal limits)

**Question 1**

The patient has agreed to start therapy for her HIV infection, but she would prefer to minimize the number of tablets taken per day. Which combination of antiretroviral agents is available as a 1-tablet, once-daily dosing option?

1. Dolutegravir, tenofovir disoproxil fumarate (DF), lamivudine
2. Dolutegravir, abacavir, emtricitabine
3. Elvitegravir, cobicistat, tenofovir alafenamide, emtricitabine
4. Elvitegravir, cobicistat, tenofovir DF, lamivudine

Answer: 3. Elvitegravir, cobicistat, tenofovir alafenamide, emtricitabine

Rationale: The combination represented in option 3 is Genvoya, a marketed combination tablet that is taken once daily. Options 1, 2, and 4 do not exist as combination products.

Citation: U.S. Department of Health and Human Services (DHHS). Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents. January 28, 2016:F-3. Available at http://aidsinfo.nih.gov/guidelines.

**Question 2**

Which regimen is recommended as prophylaxis for opportunistic infections in this patient?

1. Trimethoprim/sulfamethoxazole double strength (DS) 1 tablet daily
2. Trimethoprim/sulfamethoxazole DS 1 tablet daily, fluconazole 200 mg orally once daily
3. Trimethoprim/sulfamethoxazole DS 1 tablet daily, azithromycin 1.2 g orally once weekly
4. Trimethoprim/sulfamethoxazole DS 1 tablet daily, fluconazole 200 mg orally daily, azithromycin 1.2 g orally once weekly

Answer: 1. Trimethoprim/sulfamethoxazole DS 1 tablet daily

Rationale: Current guidelines recommend prophylaxis only for *Pneumocystis jiroveci* in this patient. Guidelines do not recommend primary prophylaxis for *Candida*; thus, fluconazole is inappropriate. *Mycobacterium avium* complex prophylaxis should not be initiated unless the CD4 is less than 50 cells/mL; thus, azithromycin is not needed.

Citation: U.S. Department of Health and Human Services (DHHS). Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. December 17, 2015:B-8, G-5, L-2. Available at <http://aidsinfo.nih.gov/guidelines>.

**Question 3**

Which is the best regimen to treat her current non-HIV sexually transmitted infections?

1. Ceftriaxone 250 mg intramuscularly once, azithromycin 1 g orally once, and acyclovir 400 mg orally twice daily
2. Ceftriaxone 250 mg intramuscularly once, azithromycin 1 g orally once, and famciclovir 500 mg orally twice daily
3. Ceftriaxone 250 mg intramuscularly once, penicillin G 2.4 million units intramuscularly, and famciclovir 500 mg orally twice daily
4. Ceftriaxone 250 mg intramuscularly once, penicillin G 2.4 million units intramuscularly, and acyclovir 400 mg orally twice daily

Answer: 1. Ceftriaxone 250 mg intramuscularly once, azithromycin 1 g orally once, and acyclovir 400 mg orally twice daily

Rationale: The patient needs to be treated for N. gonorrhoeae and empirically for Chlamydia (according to the CDC STD guidelines). The patient should also receive suppressive therapy for herpes simplex virus (episodic treatment for recurrent genital herpes infections is not indicated unless it's begun within 1 day of symptom onset). Option 1 is correct because it appropriately treats these three pathogens. Option 2 is incorrect because the dosing of famciclovir is inaccurate (should be 250 mg twice daily for suppressive therapy); moreover, it would be a more expensive treatment regimen. Options 3 and 4 are incorrect because there is presently no indication for penicillin therapy. She has no indication of active syphilis infection (RPR stable at 1:1 for the past year). In addition, option 3 is incorrect because the dosing of famciclovir is inaccurate.

Citation: CDC. Sexually Transmitted Diseases Treatment Guidelines, 2015. MMWR 2015;64:31, 62.

**Question 4**

The physicians want to initiate treatment for HIV as well as for tuberculosis (TB) using a rifabutin-based regimen. Although the patient prefers a 1-tablet regimen, she is amenable to other options. Which regimen is most appropriate?

1. Dolutegravir/abacavir/lamivudine combination tablet once daily
2. Dolutegravir 50 mg, abacavir 600 mg, and lamivudine 150 mg, each once daily
3. Elvitegravir 150 mg, tenofovir DF 300 mg, and emtricitabine 200 mg, each once daily
4. Elvitegravir/cobicistat/tenofovir alafenamide/emtricitabine combination tablet once daily

Answer: 2. Dolutegravir 50 mg, abacavir 600 mg, and lamivudine 150 mg, each once daily

Rationale: Option 2 provides accurate doses, adjusts for renal function (CrCl 42 mL/minute/1.73 m2), and is compatible with rifabutin. Option 1 is inappropriate because lamivudine needs to be dose adjusted and the 300mg of lamivudine in the combination tablet is inappropriate for this patient. Options 3 and 4 are inappropriate because elvitegravir is contraindicated with both rifampin and rifabutin. Moreover, option 3 is missing a pharmacokinetic booster for elvitegravir.

Citation: U.S. Department of Health and Human Services (DHHS). Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents. January 28, 2016:L-33, P-14. Available at http://aidsinfo.nih.gov/guidelines.

**Question 5**

One month later, results of the TB resistance tests show that this patient’s TB is resistant to rifampin and isoniazid. The patient states that her coughing decreased over the first 2 weeks but that it has returned to baseline over the past 2 weeks. Which TB regimen is best to recommend for this patient?

1. Levofloxacin, amikacin, rifapentine, pyrazinamide, isoniazid
2. Levofloxacin, para-aminosalicylic acid, kanamycin, amikacin, ethambutol
3. Pyrazinamide, levofloxacin, amikacin, ethambutol, cycloserine
4. Pyrazinamide, levofloxacin, amikacin, streptomycin, ethambutol

Answer: 3. Pyrazinamide, levofloxacin, amikacin, ethambutol, cycloserine

Rationale: Second-line anti-TB medications are needed for this patient, and only option 3 contains an appropriate combination of medications. Options 2 and 4 are incorrect because they include two aminoglycosides, which would significantly increase the risk of renal damage. Option 1 is incorrect because it includes two of the medications the patient has documented resistance to, thus providing insufficient medications to treat the patient.

Citation: American Thoracic Society; CDC; Infectious Diseases Society of America. Treatment of tuberculosis. MMWR 2003;52(RR11):19, 69.