THE PHARMACIST'S ROLE IN NEWLY DIAGNOSED HIV

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PRESENTATION

MJ is a 25-year-old African-American male who is newly diagnosed with HIV. MJ visits his neighborhood pharmacy with several new prescriptions: zidovudine 300 mg once daily, stavudine 40 mg twice daily, and efavirenz 600 mg once daily. He is also currently taking quetiapine 200 mg at bedtime and extended-release valproic acid 500 mg twice daily for bipolar disorder, which was diagnosed 5 years ago.

MJ has been using this pharmacy for approximately 2 years. The pharmacist knows MJ is employed by a national delivery and shipping company and appears to maintain a healthy lifestyle under the supervision of his psychiatrist (ie, good nutrition, steady employment, sufficient rest, exercise, no illicit drug use, no excessive use of alcohol, and does not smoke).

WHAT ARE THE PHARMACIST'S ISSUES?

The first priority for the community pharmacist is to ensure that the new medications will not be interacting adversely with each other or with MJ's current medication regimen. MJ has been prescribed 2 nucleoside reverse transcriptase inhibitors (NRTIs; zidovudine and stavudine) and a non-nucleoside reverse transcriptase inhibitor (efavirenz). Stavudine and zidovudine should not be taken together, as they inhibit each others' metabolism, as outlined in the recently updated guidelines from the Department of Health and Human Services (DHHS).[1] This combination is specifically included in those that should not be recommended at any time. Zidovudine is also a twice-daily medication and would only be dosed once daily in a patient with extreme renal dysfunction. Efavirenz would not be a good choice in this patient with a known psychiatric disorder due to the central nervous system side effects of this drug, which could also potentially affect this patient's ability to perform his job (drive) for the first 2 to 3 weeks he takes the medication. Efavirenz can also cause a false-positive cannabinoid test on a urine drug screen, which could be a problem for this patient. He is employed and may be subjected to random drug screens.

The pharmacist calls the prescribing physician to discuss the choice of medications and the physician changes the prescription to emtricitabine plus tenofovir and atazanavir. This is a protease inhibitor-based regimen that is a recommended alternative regimen, based on the DHHS guidelines.[1] Emtricitabine plus tenofovir is a combination product, which reduces the pill burden, but the tenofovir can decrease atazanavir bloodstream levels (area under the curve and C_{min}). The DHHS guidelines suggest avoiding concomitant use of atazanavir with tenofovir without ritonavir.[1] The pharmacist mentions this to the doctor who agrees to the addition of ritonavir.

The second priority for the pharmacist, given this complicated regimen, will be side effects. Emtricitabine plus tenofovir has minimal toxicity, but NRTI class side effects of lactic acidosis can happen rarely. Renal function can be affected in patients taking tenofovir and should be monitored. Atazanavir can cause indirect hyperbilirubinemia, prolonged PR interval, hyperglycemia, and fat maldistribution. Atazanavir is lipid neutral and would be an advantage with quetiapine, which can also affect lipids. Ritonavir is used as a booster for atazanavir. Important side effects are mainly gastrointestinal disturbance, nausea, and diarrhea. Incidence of pancreatitis and hepatitis are decreased at the low doses used for boosting. Emtricitabine plus tenofovir, atazanavir, and ritonavir are associated with mild nausea.

The third priority for the pharmacist is patient adherence, which is intricately tied to the adverse effect potential and patient education. The pharmacist explains the possible side effects to MJ and that he is already at increased risk of hyperglycemia with que-

tiapine, thus he will need to be especially careful with his diet and exercise plan. He should have his blood sugar levels checked regularly. MJ should also watch for and report any yellowing of the eyes or skin (caused by hyperbilirubinemia). Finally, atazanavir needs to be taken with food. Ask the patient what he does when and if he has heartburn. Counsel concerning safe use of antacids and H_2 blockers. Proton pump inhibitors should never be used with atazanavir. This is important in that all of these acid reducers are available over the counter and could impact the success of his treatment. Ritonavir should be kept cool, in the refrigerator or at room temperature. Ritonavir is stable at room temperature for 1 month.

The pharmacist asks MJ about the information that the prescribing physician told him, to ensure that MJ understands what medications he is taking. The pharmacist writes down when the drugs should be taken each day and the special instructions (ie, taken with food, how to take antacids and H_2 blockers if needed, never take proton pump inhibitors, and storage of ritonavir). The pharmacist helps the patient identify a specific time every day he will take the medicine and offers him a pill box. Finally, the pharmacist reiterates the importance of taking each and every dose, on time. The pharmacist explains that getting it right 100% of the time is important not only for fighting the virus but also to prevent the development of resistant strains, which will limit MJ's future treatment options. The pharmacist acknowledges that MJ has already shown he can take his medication correctly, as he has done with his bipolar disorder treatments, thus MJ is already "one step ahead." The pharmacist invites MJ to call at anytime with questions about the drugs and will be happy to go over the dosing schedule again.

If MJ had been a patient at your pharmacy, what else would you have recommended to increase the chances of 100% adherence?

REFERENCE

1. Panel on Clinical Practices for Treatment of HIV Infection, Department of Health and Human Services. Guidelines for the use of antiretroviral agents in HIV-1–infected adults and adolescents. Available at: http://www.AIDSinfo.nih.gov. Accessed December 15, 2005.