

Treating HIV & AIDS: The Increasing Role of the Community Pharmacist

Increased pharmacist intervention will be paramount to the successful therapeutic outcomes of patients

by Nicholas Olson, PharmD

Kaletra®, Truvada®, Invisase®, AZT – to many pharmacists these drugs are met with some apprehension. Medications used to treat the human immunodeficiency virus (HIV) and the acquired immune deficiency syndrome (AIDS) may invoke bad memories of a pharmacy exam from years past. When prescriptions for these medications come across our counters, we often frantically search drug resources to check for interactions and to assess appropriateness of therapy. Unfortunately, it is a natural tendency for people to limit their interactions with subjects with which they are uncomfortable or to proceed over-cautiously when they perceive they do not have the proper knowledge. Pharmacists are not immune to this phenomenon.

THE DISEASE

The human immunodeficiency virus is a retrovirus that is transmitted via sexual contact, i.e. anal or vaginal intercourse, via cutaneous contact with infected fluids such as blood or via vertical transmission (mother to child during childbirth). The glycoprotein 120 moiety on the virus targets cell differentiating factor 4 (CD4) receptors on helper T-cells in the human immune system. Through a series of sub-cellular processes, HIV ribonucleic acid is transcribed to deoxyribonucleic acid (DNA). The transcribed DNA is incorporated into the CD4-positive cell's DNA and the T-helper cell, in effect, becomes an HIV generating factory. This process eventually destroys the cell.

The infection often progresses to the diagnosis of acquired immune deficiency syndrome. People are differentiated from being HIV positive to having AIDS when a patient is diagnosed with an AIDS-defining illness, such as an opportunistic infection, or the patient's CD4-positive T-cell count drops below 200 cells per microliter of blood.

THE HISTORY

If you are like most pharmacists, you do not see a lot of patients with HIV/AIDS in your practice – or at least didn't in the past. The lack of patients was a result of a

lack of adequate treatment and standard disease testing infrastructure. Patients infected with HIV quickly progressed to AIDS and died. There were no adequate treatments that could be managed in an outpatient setting. In addition, many people discovered they were infected when their immune systems were far too damaged for the available treatments to help. It was estimated that over 25% of people infected with HIV were unaware of their status; unfortunately we have not greatly improved that statistic.¹

HIV/AIDS also carried a stigma with it that tended to drive patients out of treatment or even prevented them

from getting tested for the infection in the first place. Patients did not want to disclose their status for fear of judgment or persecution. As a result, they had very poor therapeutic outcomes. Many studies have shown that patients with HIV/AIDS felt discriminated against even in health care settings. Some studies showed that people with HIV/AIDS received a lower level of health care compared to HIV-negative counterparts. Much of this discrimination was attributed to misconceptions of how the disease was contracted, a knowledge gap of the natural progression of the disease, as well as a lack of adequate treatment knowledge.²⁻³

In 1995, the treatment of HIV/AIDS underwent a paradigm shift. Patients with HIV/AIDS started to be treated with an antiretroviral "cocktail," and the era of highly active antiretroviral

An adherence intervention: Pharmacist-facilitated HIV medication support group

Enfuvirtide (Fuzeon®) is a protein-based medication used to treat the human immunodeficiency virus. It is administered as a twice-a-day subcutaneous injection as part of a combination of two or more antiretrovirals. Enfuvirtide is indicated for and is predominantly used in highly treatment-experienced patients.

Enfuvirtide treatment poses many challenges to patients. The medication has a narrow dosing window, complicated reconstitution procedures and can cause painful injection site reactions. All of these factors contribute to adherence barriers for patients who need to be on this medication.

Pharmacists from Bioscrip Pharmacy partnered with the Wisconsin Pharmacy Foundation and Roche Pharmaceuticals to provide a support group for patients who are on or who potentially will need to be on enfuvirtide. The meeting was also open to caseworkers and medical providers who wanted a better idea of what patients on enfuvirtide therapy experience.

The group met one evening each month to discuss various aspects and challenges of enfuvirtide therapy. Each meeting was moderated by at least one pharmacist from Bioscrip Pharmacy. There was always a nurse specially trained in enfuvirtide administration in attendance and there were guest facilitators at many meetings who spoke on various topics related to HIV and enfuvirtide therapy.

The meetings were well attended and well received by patients. The enfuvirtide support group program will continue in the future. Special thanks are extended to the Wisconsin Pharmacy Foundation for supporting this project.

therapy (HAART) was introduced. Patients were now presenting to pharmacies with multiple prescriptions for antiretroviral drugs, as well as prescriptions for antimicrobials to prevent opportunistic infections. Pharmacists were thrust into unique opportunities to monitor these therapies for toxicities, adherence and interactions.

CURRENT PRACTICE

Patients who are going on HAART are being started earlier and are staying on their medications longer. This trend is the result of several studies showing that when HAART is used earlier in HIV infection, patients have better outcomes.⁴⁻⁶ In conjunction with the efforts of getting younger people tested earlier for the disease, early use of HAART is resulting in a large increase in the number of patient-years that people will be treated for HIV.

The HAART era has increased the average life expectancy of people with HIV/AIDS from 6.8 to 24.2 years.⁷⁻⁸ People with HIV/AIDS are no longer necessarily dying from opportunistic infections and other disorders associated with decreased immune functions. Rather, cardiovascular disease, cancer and liver failure, which are primary mortality factors in HIV-negative adults, are now top mortality factors in HIV-positive adults.⁹ Coupled with the fact that HAART may contain many combinations of the 21 currently available antiretroviral medications, pharmacists, now more than ever, play key roles in the therapeutic outcomes of patients.

PHARMACIST INTERVENTIONS

What interventions can we provide? What sort of education and training do we need? What most pharmacists do not realize is that they are well equipped to successfully aid and counsel patients with HIV/AIDS. Pharmacists have been performing interventions and programs that assist patients in many chronic disease states. The following summarizes some of the simple interventions pharmacists can perform to increase the pharmacotherapeutic outcomes in patients.

Adherence to medication therapy is one of the most important factors for positive outcomes for patients on HAART. Patients who maintain adherence levels above 95% have statistically better outcomes with

regard to maintaining undetectable viral loads and preventing medication resistance.¹⁰ Pharmacists are in the best position in the health care system to monitor refill dates, ask about side effects and assure all medications in the HAART regimen are being filled. Providing pill boxes and refill reminders are powerful ways to assist patients with their therapy.

Helping patients manage comorbid conditions is invaluable to patients' therapeutic outcomes and quality of life. As the life span of patients affected with HIV/AIDS is increasing, so do the comorbid conditions with which patients are diagnosed. Whether it is the underlying infection or the long-term toxicities of HAART (most likely a combination of both), the number of patients presenting with elevated lipids, decreased insulin sensitivities, neuropathies and various other metabolic disorders is increasing.¹¹ These conditions need to be managed in addition to the HIV infection. Pharmacists are well trained in managing patients with chronic disease states such as diabetes and hyperlipidemia. Community-based diabetes, hypercholesterolemia and hypertension programs, as well as smoking cessation programs, are all important interventions that will benefit these patients.

What may make monitoring patients with these comorbid conditions even more important are the serious drug interactions that certain chronic disease medications can have with commonly prescribed antiretrovirals. For instance, simvastatin and lovastatin are contraindicated with several protease inhibitors, particularly ritonavir, whose principal use is to pharmacokinetically "boost" other antiretrovirals. Patients on these combinations can experience serum HMG-CoA reductase inhibitor levels 500-3000% higher than normal, putting them at an increased risk for rhabdomyolysis and acute renal failure.¹² Pharmacists need to be vigilant when new medications are being prescribed for patients on HAART, particularly when the prescriber differs from the one writing for the antiretrovirals.

SUMMARY

Pharmacists have proven their worth over and over again with the interventions that they perform. Prescribers are now expecting pharmacists to maintain contact with

them regarding co-managed patients. It is important for pharmacists to document the interventions they are performing and inform providers of non-adherence as well as other potential medication therapy misuse and misadventure. Creating communication forms that can be faxed or e-mailed to providers facilitates this communication and provides documentation templates that can be used for third-party payor reimbursement.

There are currently over 6,100 patients infected with HIV in Wisconsin.¹³ It is estimated that in the United States each year 40,000 people will become infected with HIV.¹⁴⁻¹⁵ With the paradigm of treatment for HIV/AIDS switching from one of acute care to a more chronically managed condition, the number of patients requiring pharmaceutical care will increase. Pharmacists do not need to reinvent the wheel. Rather, they can adapt the programs they have been using to manage other chronic disease states to apply to and benefit their patients affected by HIV and AIDS. ●

Nicholas Olson is the managing pharmacist at Bioscrip Pharmacy in Milwaukee.

REFERENCES

1. Glynn MK, Rhodes P. Estimated HIV prevalence in the United States at the end of 2003. In: Abstracts of the National HIV Prevention Conference; June 12-15, 2005; Atlanta. Abstract T1-B1101.
2. Hays RD, Cunningham WE, Sherbourne CD, et al. Health-related quality of life in patients with human immunodeficiency virus infection in the United States: results from the HIV cost and services utilization study. *Am J Med* 2000; 108:714-722.
3. Cunningham WE, Markson LE, Andersen RM, et al. Prevalence and predictors of highly active antiretroviral therapy use in persons with HIV infection in the U.S. *J Acquir Immune Defic Syndr* 2000; 25:115-123.
4. Maggiolo F, Ravasio L, Ripamonti D, et al. Similar adherence rates favor different virologic outcomes for patients treated with nonnucleoside analogues or protease inhibitors. *Clin Infect Dis* 2005; 40:158-163.
5. Grossberg R, Zhang Y, Gross R. A time-to-prescription-refill measure of antiretroviral adherence predicted changes in viral load in HIV. *J Clin Epidemiol* 2004; 57:1107-1110.
6. Paterson DL, Swindells S, Mohr J, et al. Adherence to protease inhibitor therapy and outcomes in patients with HIV infection. *Ann Intern Med* 2000; 133:21-30.
7. Hellinger FJ. The lifetime costs of treating a person with HIV. *JAMA* 1993; 270:474-478.
8. Schackman B, Gebo K, Walensky R, et al. The lifetime costs of current human immunodeficiency virus in the United States. *Med Care* 2006; 44:990-997.
9. Martinez E, Milinkovic A, Buira E, et al. Incidence and causes of death in HIV-infected persons receiving highly active antiretroviral therapy compared with estimates for the general population of similar age and from the same geographical area. *HIV Med* 2007; 8:251-258.
10. Low-Beer S, Yip B, O'Shaughnessy MV, et al. Adherence to triple therapy and viral load response. *J Acquir Immune Defic Syndr* 2000; 23:360-361.
11. Kingsley L, Smit E, Riddler S, et al. Prevalence of lipodystrophy and metabolic abnormalities in the Multicenter AIDS Cohort Study. In: Program and abstracts of the 8th Conference on Retroviruses and Opportunistic Infections; February 4-8, 2001; Chicago. Abstract 538.
12. Fichtenbaum CJ, Gerber JG, Rosenkranz SL, et al. Pharmacokinetic interactions between protease inhibitors and statins in HIV seronegative volunteers: ACTG Study A5047. *AIDS* 2002; 16:569-577.
13. The State of Wisconsin Department of Health and Family Services website. Available at: <http://www.dhfs.state.wi.us/AIDS-HIV/Stats/Qtly-HIVSurv0707.pdf>. Accessed September 10, 2007.
14. Advancing HIV prevention: New strategies for a changing epidemic --- United States, 2003. *MMWR* 2003; 52(15) available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5215a1.htm>. Accessed September 11, 2007.
15. HIV Prevention Strategic Plan Through 2005. Available at: <http://www.cdc.gov/hiv/resources/reports/pspl/>. Accessed September 11, 2007.