

HIV Frontline

A Newsletter for Professionals Who Counsel People Living With HIV

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Integrating Complementary Therapies With HIV Treatments

A landmark study published in 1993 found that one in three adult Americans acknowledged using some form of nontraditional therapy and that almost three quarters of them had not discussed this with their healthcare providers. Recent surveys have found a higher percentage of patients in the HIV community seeking therapies outside the mainstream medical establishment. It is likely, therefore, that counselors of people living with HIV will have clients who are either already pursuing or, at least, considering complementary medical approaches to HIV disease. This issue of **HIV Frontline** looks at complementary therapies and the importance of integrating them into standard antiretroviral therapy (ART) regimens. Our goal is to improve communication regarding treatment—between client and counselor, between patient and clinician, and among all members of the treatment team.

■ What Is Complementary Therapy?

Complementary therapy generally comprises practices that are not part of the established, traditional healthcare system in the United States but are used with or in lieu of traditional Western medicine.

This field encompasses treatment by healers such as Buddhist, Native-American, ayurvedic, naturopathic, homeopathic, and folk-remedy practitioners and includes healing modalities, such as acupuncture, used in traditional Chinese medicine.

Some therapies rely on herbs, vitamins and minerals, animal products and extracts, amino acids and other molecular dietary supplements, and diets that include or exclude certain foods. Other therapies offer “body work” such as exercise, massage, chiropractic, and acupressure. Still others, such as hypnosis, yoga, meditation, biofeed-

back, relaxation therapy, and visualization, focus on the mind-body connection. There are also quasimedical procedures, including enemas and blood cleansing, and antioxidant and hyperthermia treatments.

Traditionally, such strategies have been termed “alternative” medicine. Alternative, however, implies that nontraditional medicine is used exclusively. The term “complementary” is preferred, because it indicates that the patient is combining approaches and benefiting from what each one offers.

Until recently, complementary therapy was not taught in medical schools. Generally, it is not available in hospitals and may involve substances that are not regulated or approved by the Food and Drug Administration (FDA).

Some complementary therapies have a place in the treatment of HIV, but the emphasis must be on the word *complementary*. Most HIV experts believe that no treatment should replace the current standard of care—maximally suppressive combination ART with an optimal regimen for the individual patient and, where necessary, medications to prevent and treat other HIV-related conditions.

■ From Alternative to Mainstream

Traditional medicine is constantly evolving, and yesterday's alternative may become tomorrow's standard therapy. Herbal cures may sound like an alternative, but some of the

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Integrating Complementary Therapies (continued from page 1)

most valuable drugs in the modern medicine chest, including penicillin, digitalis, and the cancer fighter Taxol[®], derive from natural sources. Now, there is a PDR[®] (*Physicians' Desk Reference*) for herbal medicines. Therapies that rely on the mind-body connection may sound distinctly "new age," but approaches such as biofeedback, exercise, and participation in support groups have proven beneficial and are now embraced by the medical establishment.

A recent survey published in the *Journal of the American Medical Association* found that more than 60% of primary care physicians recommend some type of complementary therapy to their patients, and nearly 25% of physicians incorporate such therapies in their practices. At least 40 medical schools offer elective courses in complementary therapies, and there are increasing numbers of integrated clinics that provide both traditional and complementary therapies in a single setting.

There is still considerable resistance, however, to the idea of nontraditional medicine. The *New England Journal of Medicine* acknowledged the growing popularity of complementary therapy in a 1993 survey of its prevalence, costs, and patterns of use. In 1998, a significant portion of one issue was devoted to the dangers of nontraditional medicine. It urged that alternatives be avoided unless and until they are proven safe in rigorous scientific studies.

In 1992, the federal government established the Office of Alternative Medicine (OAM) to identify and support research in complementary therapy. OAM sponsors 50 projects at 11 research centers, including Bastyr University in Seattle, the only center devoted to research in HIV. Very little solid data have emerged since OAM began operations, but it is hoped that its promise will be fulfilled.

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Spotting AIDS Fraud

Red flags for anyone seeking treatment outside the mainstream include

It's a cure

No responsible person claims a cure for AIDS; the most effective, proven therapies offer only viral suppression and improved health.

It's good for many things

Not just AIDS, but cancer, baldness, arthritis, or other conditions. This claim is a sure sign that the seller is just trying for the broadest possible market.

It has a secret ingredient

No one, especially someone with the multiple health problems and vulnerability associated with HIV disease, should ingest an unknown substance.

It's a conspiracy

Claims that the government, in league

with pharmaceutical companies, is trying to suppress an effective treatment should probably be dismissed as a smoke screen masking a questionable product.

It's been written up, but it's in a foreign language and/or hard to find

Any credible study published in a reputable scientific journal will be readily available in English in a medical or university library or, increasingly, on the Internet.

It's available only outside the United States

Steer clear of treatments that require travel to clinics in countries where medical practice may be poorly regulated. Such travel can be expensive and the treatments dangerous.

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Government regulation of complementary therapy is limited, mainly because of the Dietary Supplement Health and Education Act of 1994. This act sharply restricts FDA regulation of nondrug products that promote health but do not claim to prevent or treat a specific disease. Most vitamins, herbs, botanical extracts, amino acids, and other dietary supplements, therefore, have avoided scrutiny by the FDA.

■ The Spectrum of Complementary Therapies

Complementary therapies range from approaches that are known to be beneficial to those that are known to be harmful or fraudulent. Therapies whose effects are less evident may be worth trying. Patients should be urged, however, to try them only after informing their treatment teams and when combining them with standard therapies.

Most complementary therapies known to be beneficial involve lifestyle modification, and many have been integrated into traditional medical practices. For people living with HIV, recommended lifestyle changes include

- Improvement of nutrition and diet
- Exercise
- Cessation of smoking and other substance use
- Stress reduction
- Relaxation
- Counseling
- Participation in support groups

Approaches that may be beneficial and are unlikely to be detrimental include *reasonable* amounts of supplementary vitamins, which may provide nutritional support. (Note: Excess amounts of water-soluble vitamins, such as B and C, will be eliminated through urination. Fat-soluble vitamins, however, such as A, D, E, and K, are stored primarily in the liver, where most HIV drugs are metabolized. Excessive amounts of these vitamins may be toxic.)

Other therapies that probably will cause no harm, may relieve symptoms, and may provide comfort include

- Acupuncture
- Massage
- Acupressure
- Therapeutic touch

Therapies that are ingested may cause side effects and interfere with prescribed treatments. It is a mistake to assume that herbs and other natural products are harm-

less. Though many plants (including digitalis, opium, and ephedra) have powerful medicinal properties, some (such as pennyroyal and jimson weed) are poisonous. Others—for example, plantain and various “secret” ingredients in Chinese herbal preparations—may worsen nausea, diarrhea, and other side effects of prescribed HIV treatment. Recently, reports of contamination of dietary supplements with heavy metals and other toxic substances have caused these unregulated “nutriceuticals” to be viewed negatively.

Not much is known about the interactions between specific complementary therapies and the drugs used to treat HIV. This is mainly because of the dearth of scientific studies on the subject, but reliable anecdotal information is also sparse. This lack of information can be attributed to patients’ reluctance to admit to the use of complementary medicines for fear of earning disapproval from their healthcare providers.

Counselors should urge clients to tell their medical teams about any complementary treatments they are receiving and unusual foods or dietary supplements they are ingesting. It is a good idea to try only one complementary therapy at a time and note any change in symptoms, for better or worse. Clinicians should be encouraged to elicit and evaluate this information in a nonjudgmental and nondismissive manner. The most important thing is to have complete knowledge, so that the entire treatment team, including the patient, can watch for negative, or even positive or synergistic, effects.

Some general categories of complementary therapy are predictably harmful to people with HIV disease. Raw animal products and other potentially contaminated foods (including certain fungi) can be fatal, since a weakened immune system cannot properly fight infection. *Escherichia coli*, *Salmonella*, other disease-causing organisms found in improperly prepared foods, and *Cryptosporidium*—associated with poorly filtered tap water—are considerably more dangerous for people with compromised immune systems than for those who are healthy. Raw-milk dairy products can pose a threat to people with HIV. One-dimensional diets, such as a macrobiotic diet, do not provide adequate nutrients and can result in dangerous weight loss and wasting. Substances that use the same metabolic pathways as protease inhibitors may cause levels of protease inhibitors to rise or fall suddenly and dramatically, with potential adverse effects or the emergence of resistant HIV. Any therapy that requires the patient not to use ART or medications prescribed to prevent or treat opportunistic

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Integrating Complementary Therapies *(continued from page 3)*

infections (OIs) should be reviewed with caution by a provider of Western medicine.

At the far end of the spectrum are practitioners and treatments that constitute out-and-out fraud. Regrettably, people living with HIV are susceptible to the hope of “miracle cures,” and there is no shortage of unscrupulous people ready to exploit that hope. Examples of this include offshore and non-US clinics that offer seemingly bizarre treatments using ozone and other so-called antioxidants, blood cleansing, and enemas designed to “flush” the virus from the system.

■ Treatment Goals

Surveys studying what draws people to complementary therapies have found that the higher the level of education and the poorer the health status of the patient, the more likely that patient is to look beyond what traditional medicine offers. Many people living with HIV are highly educated about their disease and tend to be involved and proactive regarding issues of medical care. In some cases, complementary therapies are culturally prescribed. Family members, eager to help their loved ones, may purchase “remedies” or recommend treatments they have heard about in their communities. There also appears to be a segment of the HIV population that is particularly vulnerable to fraudulent aspects of nontraditional medicine. Certain members of various underserved populations, who may lack education, resources, and access to reliable information about their disease, may be easy prey for the “miracle cures” and treatments they hear about.

It makes sense, therefore, to look at reasonable goals for people living with HIV disease. These goals may be achieved through the use of traditional medical approaches, complementary therapies, or a combination of the two.

For most people living with HIV, the primary objective is to prolong survival by delaying disease progression, reducing viral load, and bolstering or rebuilding the immune system. The only therapy that has been proven in rigorous clinical trials to have achieved this objective is ART. Controlling OIs is another important task for which FDA-approved pharmaceuticals are best suited.

For all patients, regardless of their stages of disease and prognoses, improving quality of life is a significant and reasonable goal. Complementary therapies, used alone or with traditional approaches, can make a big difference in alleviating symptoms, lowering anxiety levels, maintaining good nutrition, and improving general health and well-being.

Regarding goals that focus on state of mind, complementary therapies can provide answers to issues that mainstream medicine may not even attempt to address. These include psychological, emotional, and/or spiritual support and a sense of empowerment gained from having choices and taking as much control as possible in dealing with one's illness.

■ What Counselors Can Do

Counselors have an important role in bridging the gap between mainstream and nonmainstream approaches. The main task is not to be advocates for one approach over the other but rather to serve as facilitators of communication and information gathering.

Use discussion of complementary therapies as a bridge for improved communication

Open discussion by asking clients, “What are you doing to help yourself be as healthy as possible? What does this include besides taking the medicine your healthcare provider has prescribed?” These direct questions will often elicit information about complementary therapies the client is using.

Keep discussion open by following up with clients at subsequent meetings. Ask how things are going, and make specific reference to complementary approaches they have mentioned previously.

Establish trust by being understanding

Some patients with HIV are not ready to consider standard medications. It is essential not to abandon these clients or communicate an attitude that implies, “Come back when you're ready for ART.” Counselors who are attentive without being judgmental will be able to maintain relationships and gauge client readiness. It is vital to preserve opportunities for educating clients and monitoring their symptoms and rates of disease progression until the use of ART is accepted.

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Integrating Complementary Therapies (continued from page 4)

Help clients obtain information

There is a wealth of information about complementary therapies available in books and other publications, from AIDS advocacy groups, and on the World Wide Web (see **Resources**, below). Not all of this information is reliable, however. Counselors can steer clients to sources of information and help them evaluate the quality of the sources.

Help clients investigate health insurance coverage for complementary therapy

Most health insurers do not offer reimbursement, but there are exceptions. Coverage may be available for therapies delivered or referred by traditional medical providers or obtained through integrated medical clinics. A growing number of insurers and HMOs cover some categories of complementary therapy. Those most often covered include biofeedback, acupuncture, and chiropractic. Some states mandate coverage for treatment by specific types of licensed practitioners, and thanks to the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act, many states have complementary funds set aside for use by people who are HIV positive.

Help clients evaluate therapies

Become informed about the complementary therapies most often discussed in the context of HIV disease, including those that are "hot" and especially those that are known to be either helpful or dangerous. Encourage clients to seek out licensed practitioners and ask about published reports, rather than relying on hearsay and testimonials, on any complementary therapy they are considering.

Help clients make informed choices and recognize the "red flags" for fraud (see **Spotting AIDS Fraud**, page 2)

The FDA has set up a network of AIDS Fraud Task Forces that operate on a state-by-state basis. Their services vary—some sponsor public education programs but primarily collect information about fraudulent therapies; others will discuss specific therapeutic options and offer guidance in making informed choices (see **Resources**, below).

Help clients talk with their medical teams about complementary therapy

Unreported use of complementary therapies can adversely influence the results of traditional treatment. All health-care professionals should routinely ask patients about their use of complementary therapies, and counselors should urge clients to confide the facts to members of their health-care teams. Regardless of treatment, regular monitoring of disease progression with CD4 cell count assessment and viral load testing is essential.

Work with clients to make lists of questions for their healthcare providers and, if necessary, act as an intermediary to pave the way for constructive discussion of complementary care. It may be useful for members of treatment teams to talk with the nontraditional practitioners, both to encourage patient confidence and to establish a team approach.

■ Resources

Libraries

Books, magazines, and scientific journals can be found in public libraries and more specialized university and medical libraries, many of which are open to the public. The *Index Medicus* catalogues articles in medical journals worldwide. This information is available on line from the National Library of Medicine (<http://www.nlm.nih.gov>).

The World Wide Web

Other websites include
Office of Alternative Medicine—
<http://altmed.od.nih.gov>
Immunet and AIDS Treatment News—
<http://www.aids.org>
AIDS Treatment Data Network—
<http://204.179.124.69/network>
The Body: An AIDS and HIV Information Resource—

<http://www.thebody.com>
Beacon Clinic—<http://www.beaconclinic.org>
Health A to Z—<http://www.healthatoz.com>
AIDS Research Information Center—
<http://www.critpath.org/aric>
The Alternative Medicine Home Page—
<http://www.pitt.edu/~cbw/altm.html>
AIDS/HIV Internet Resource Center—
<http://members.aol.com/healwell/aids.htm>
Internet Grateful Med—<http://igm.nlm.nih.gov>

Hotlines

AIDS Health Fraud Hotline: (888) 332-1820
(6 PM–9 PM, EST, M–F)

California AIDS Fraud Task Force: (800) 459-4503
(will take out-of-state calls)

HIV-Related Conditions Focus On: Candidiasis

Candidiasis is the most common HIV-related fungal infection. Prior to the availability of maximally suppressive ART, as many as 90% of HIV-infected individuals could be expected to have at least one episode. Candidiasis is caused by the excessive growth of one of several yeastlike organisms of the family *Candida*. *Candida* can be found on the mucosal tissues and in the gastrointestinal (GI) tracts of most healthy people and is usually harmless. For people with compromised immune systems, *Candida* can cause infections that are disagreeable and sometimes painful but usually not life threatening. Its greatest significance is as a sentinel disease—often the first sign that something is amiss with the immune system.

On an emotional level, recurrent candidiasis can be very frustrating for the patient, affecting pleasure derived from food and sexual activity. Clinicians should be aware of the potential psychological effects, such as stress, associated with this condition.

Infection and Disease

Candida is one of the many organisms that normally colonize in the human body without causing harm. The *Candida* population is usually regulated by white blood cells and other immune defenses and by components in saliva and other bodily fluids, especially benign bacteria that inhabit the GI and genital tracts. When something occurs that upsets this balance, however, *Candida* proliferates.

The most common type of *Candida* seen in HIV-infected individuals is *Candida albicans*. Less frequently observed species include *Candida tropicalis*, *Candida parapsilosis*, *Candida kruseii*, and a closely related organism, *Torulopsis glabrata*. These tend to infect people in whom prior therapy has resulted in drug resistance.

Recent therapy with broad-spectrum antibiotics is a common factor in the development of *Candida* infection. Such treatment leads to the elimination not only of the bacteria causing the illness being treated but also of the benign bacteria that ordinarily help keep *Candida* in check. Candidiasis is also associated with diabetes, whose characteristic high blood sugar provides *Candida* with a particularly nourishing environment. Usually, though, candidiasis is a sign of immune dysfunction. It is frequently observed in patients with cancer who are on immune-suppressing therapies and patients who have received transplants and are taking antirejection drugs. Candidiasis is

especially prevalent among HIV-infected individuals. HIV-infected women, infants, and children are particularly vulnerable.

A first episode of candidiasis may occur long before other symptoms are observed or HIV is suspected. As HIV disease progresses, the likelihood that one will develop candidiasis increases as other risk factors come into play. Antibiotics prescribed as prophylaxis for other OIs, for example, may put patients at risk for candidiasis. Xerostomia (dry mouth), commonly observed in HIV-infected patients, promotes the growth of oropharyngeal candidiasis. The risk of both occurrence and recurrence is heightened as CD4 cell counts decline.

Types, Signs, and Symptoms

Candida can be cultured from the saliva, mucous membranes, and GI tracts of most people, healthy or ill, and can be found in the reproductive organs and urinary tracts of many women. It can also be found in food, soil, and hospital environments and can affect tissues of the mouth, throat, esophagus, and vagina. *Candida* can cause a systemic infection—although this is rare—affecting the blood and vital organs. Signs and symptoms vary depending on the site of infection.

Oropharyngeal candidiasis is the most common OI associated with HIV. It affects the portion of the pharynx at the back of the mouth. General symptoms, if any, include altered taste sensation,

mouth pain or burning, and pain or difficulty in swallowing. Any or all of these can interfere with nutrition, a serious liability for HIV-infected people.

There are four main categories of oropharyngeal candidiasis. Pseudomembranous candidiasis (also called “thrush”) appears as painless white spots on the tongue, gums, inner cheeks, and throat. The spots can be easily scraped away, exposing reddened and sometimes bleeding areas beneath them. In contrast, the white spots or patches of the less common chronic hyperplastic candidiasis (or leukoplakia), which form on the tongue and inner cheeks, cannot be scraped away. Acute atrophic candidiasis (also called erythematous candidiasis) is characterized by red patches on the tongue, inner cheeks, and gums. Chronic atrophic candidiasis (also called angular cheilitis) is characterized by painful red or white cracks at the corners of the mouth.

Esophageal candidiasis occurs when infection spreads from the mouth and throat to the esophagus, typical in more advanced HIV disease. This is one of the most common GI infections associated with AIDS and may affect women and blacks more frequently than whites. Those at greatest risk have low CD4 cell counts and high viral loads.

Symptoms include ulcers and erosion of the esophagus, chest pains, and pain or difficulty in swallowing, which may be severe enough to compromise nutritional

AIDS Deaths Down but New Infections Hold Steady

According to recent data from the National Center for Health Statistics, the AIDS mortality rate in the United States decreased by 46.4% in 1997, falling to its lowest level since 1987. There were 16,865 AIDS-related deaths in 1997, compared with 31,130 deaths in 1996. Despite the encouraging news, the United States had the highest HIV/AIDS-related mortality rate of 11 industrialized countries.

The number of new HIV infections remained stable at about 40,000. Some researchers are particularly concerned that, although the decline in AIDS mortality shows great strides in treatment, prevention efforts have not been similarly successful.

Notification Guidelines Published; Name vs Code Reporting Still Debated

The Centers for Disease Control and Prevention (CDC) has finished a draft document concerning partner notification in HIV cases. Some critics say it comes too late, as many states have already begun passing their own laws, many of which do not parallel the policies outlined by the CDC.

The new CDC guidelines—4 years in the making—recommend developing a comprehensive program that would offer long-term counseling for both sexual and needle-sharing partners, support for clients who choose to notify their partners, and help in seeking medical evaluation and treatment.

HIV Testing in Prisons

As of year-end 1995, the AIDS rate among prisoners in the United States was six times higher than that in the general population. Although new inmates in federal and most state prisons are not routinely tested for HIV, in part because of the difficulty of maintaining patient confidentiality, fears about the safety of guards and the high rate of HIV and AIDS could change this policy.

The US House of Representatives has approved legislation that would require all federal inmates serving at least 6 months to be tested for HIV within 4 months of entering the prison system. Inmate testing would also be mandated if their bodily fluids come into contact with corrections officers. Results of the tests would be made available to the facility administrator and the tested inmate.

New Laws Target HIV-Infected People

Nationwide, laws that affect HIV-infected people are being passed in response to public fears about the spread of AIDS. At least 29 states have made it a criminal offense to transmit HIV knowingly. Other laws mandate partner notification and HIV testing in certain populations, including pregnant women and prison inmates, and permit good Samaritans and nonmedical personnel to inquire about the HIV statuses of the people they assist.

Many public health officials are worried that the trend toward criminalization will deter HIV-infected people from seeking help.

SOURCE: CDC National AIDS Clearinghouse. Copyright 1998, Information Inc., Bethesda, MD.

UPDATE

Progressive Multifocal Leukoencephalopathy

The Summer 1998 issue of **HIV Frontline** focused on progressive multifocal leukoencephalopathy (PML), an HIV-related condition for which there is no specific treatment. A letter in the September 17, 1998, issue of the *New England Journal of Medicine* cites a case in which 10 patients who had not previously received protease inhibitors began maximally suppressive ART within 90 days of the onset of PML symptoms. Neurologic conditions improved markedly in six of the patients, remained unchanged in three, and worsened in one. In half of the patients, JC virus, which causes PML, was undetectable as much as 1 year after PML was diagnosed. The authors of AIDS Clinical Trials Group Study 243 responded that they had observed similar results.

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status. Sometimes, however, esophageal candidiasis is asymptomatic.

Vaginal candidiasis, familiar to many women as yeast infection (also known as monilia), is extremely common in HIV-infected women. Recurrent bouts frequently precede oral candidiasis as an early warning sign of immune dysfunction. After ruling out other causes (eg, diabetes, pregnancy, or use of broad-spectrum antibiotics, oral contraceptives, corticosteroids, and other immunosuppressives), a clinician may suggest an HIV test for a woman who has recurrent vaginal candidiasis.

Symptoms include itching; burning pain; a creamy, cheeselike vaginal discharge; redness with visible white patches on the labia, vulva, and vaginal tissues, and pain during urination.

Despite the frequency of mucosal infections with *Candida* and the increasing prevalence of candidemia (bloodstream infection) in hospitalized AIDS patients, visceral infection, or systemic candidiasis (eg, infection of the liver, kidneys, or other internal organs), remains rarely reported.

The heart, kidneys, lungs, eyes, central nervous system, blood, joints, and bones are all subject to infection. Symptoms vary depending on which organ is affected.

Risk factors for systemic candidiasis include advanced HIV disease, neutropenia (low white cell count), total parenteral nutrition (or other therapies requiring the use of a central venous catheter), injection drug use, and prophylaxis with antifungal and/or broad-spectrum antibiotic drugs. Another risk factor is time spent in a hospital, since illnesses related to *Candida* are usually nosocomial (hospital-acquired) infections.

Diagnosis

Candidiasis is generally diagnosed via clinical signs. If the condition does not respond to treatment in a reasonable amount of time, a culture or biopsy of lesions may be taken to distinguish between candidiasis and hairy leukoplakia (associated with Epstein-Barr virus) or histoplasmosis, both of which affect HIV-infected people. For esophageal candidiasis, this involves inserting an endoscope down the throat and scraping the lesions.

Treatment

Candidiasis is treated with a variety of antifungal agents, including nystatin, clotrimazole, fluconazole, ketoconazole, itraconazole, and amphotericin B. These are available in various forms: lozenges and swish-and-swallow liquids for oropharyngeal disease; ointments, pills, and suppositories for vaginal disease; pills, suspensions, and intravenous preparations for more severe or refractory disease.

For a first or mild occurrence, clotrimazole or nystatin will probably be tried. For more severe episodes, oral therapy with fluconazole or itraconazole is usually successful. Ongoing prophylaxis with oral azoles is usually reserved for patients who have frequent recurrences after initial therapy because of concern with the emergence of azole-resistant *Candida* species. Amphotericin B is used intravenously when nothing else proves effective.

A 10- to 14-day course of treatment usually clears up the condition, though recurrence is common. Drug resistance and worsening immune status are factors in recurrence, but so is the ubiquitous nature of *Candida*. There is some suggestion that poor oral hygiene contributes to recurrence, as dental cavities may provide a hiding place for the organism.

Prevention

Candidiasis is not generally regarded as a communicable disease. It is an individual's vulnerability to the organism that is responsible for an infective episode. People with active outbreaks should avoid oral or vaginal contact with others.

Since it is virtually impossible to avoid exposure to *Candida*, the best hope for prevention is improvement of immune function. There is evidence that reduced viral loads and increased CD4 cell counts associated with multi-drug antiretroviral regimens may lower the incidence of candidiasis.

For patients with recurrent disease, especially when it interferes with food intake or causes extreme discomfort, prophylactic fluconazole may be considered. The risk of resistance, however, as well as the considerable expense, must be taken into account.

Good oral hygiene, including regular dental care, is advised.

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