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Histoplasmosis

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What is it?

Histoplasmosis is a fungal infection. It can occur in people with healthy and suppressed immune systems. In people with healthy immune systems, it usually does not cause noticeable symptoms, although some people experience flu-like symptoms and mild respiratory pro-blems. In people with suppressed immune systems, it can cause more serious problems, including respiratory distress, kidney and liver failure, and brain damage.

Histoplasmosis is caused by the *Histoplasma capsulatum*. This fungus is predominantly found in the central United States, especially in the Mississippi River area, the Caribbean, and South America. The infection usually begins in the lungs but can spread to other parts of the body and cause a wide range of symptoms, particular in people with compromised immune systems.

People can become infected with *H. capsulatum* upon breathing in soil or dust contaminated with bird droppings that contain the fungus. HIV-positive people with T-cells below 200 are at the highest risk of developing either mild or severe histoplasmosis after breathing in the fungus. However, histoplasmosis is not considered to be a common disease among people with AIDS, including those who live in the central United States where *H. capsulatum* is most common.

What are the symptoms?

Most people who are infected with *H. capsulatum* do not experience any symptoms of disease. If the infection causes active disease, symptoms can include fever, weight loss, skin lesions, breathing difficulties, anemia, and enlargement of the liver, spleen, and lymph nodes.

How is it diagnosed?

The most effective way to diagnosis this infection is to collect either blood or bone marrow samples. Once these fluids have been collected, a laboratory will attempt to grow the fungus in test tubes or to look for the fungus under a microscope. It is also possible to look for a *H. capsulatum* antigen—a key fragment of the fungus—in blood and urine samples.

How is it treated?

People with healthy immune systems who are diagnosed with histoplasmosis don't necessarily require treatment, as the symptoms are usually mild and clear up on their own. For people with compromised immune systems, histoplasmosis can be progressive and life threatening and, as a result, often requires treatment.

It is important to treat histoplasmosis aggressively. For the first two weeks of treatment, the drug amphotericin B (Fungizone®) is given every day through an IV line, usually while staying in a hospital. Amphotericin B can cause side effects, some of them serious. Side effects include nausea, fever, chills, muscle pain, low potassium levels, damage to the bone marrow and its ability to produce red blood cells and white blood cells, and kidney damage.

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Tip: Take a regular dose of acetaminophen (e.g., Tylenol®), ibuprofen (e.g., Advil®), naproxen (e.g., Aleve®), and/or diphenhydramine (e.g., Benadryl®) approximately half an hour before receiving amphotericin B—this can help prevent/reduce some side effects during and after receiving the infusion.

There have been some reports suggesting the liposomal amphotericin B—a drug involving microscopic spheres of lipids (fats) that contain amphotericin B—is less toxic than the standard form of amphotericin B (Fungizone®). However, it's not clear how effective these formulations of amphotericin B are for the treatment of histoplasmosis. Still, liposomal amphotericin B is sometimes prescribed for patients who become very ill while taking Fungizone® or develop kidney problems. If liposomal amphotericin B is used, experts recommend using the brand AmBisome® over that of the brands Abelcet® or Amphotec®.

After two weeks of taking amphotericin B, the drug is usually stopped and another drug, itraconazole (Sporanox®), is immediately started. This is necessary to help prevent the histoplasmosis from recurring. Itraconazole is taken by mouth, twice a day. Alternatives to itraconazole include fluconazole (Diflucan®), which is taken by mouth once a day, or weekly IV infusions of amphotericin B. These "maintenance" treatments are often continued for life, or until the health of the immune system has improved (i.e., a T-cell count above 200 as a result of anti-HIV medications).

Can it be prevented?

Because H. capsulatum can be found in dirt and soil—particularly in central parts of the United States—it is very difficult to prevent coming into contact with the fungus. Moreover, *H. capsulatum* can live in a person's body for many months or possibly years before it causes disease, depending on the health of the person's immune system.

If your T-cell count is below 200, you should take care when engaging in certain activities, especially if you live in central parts of the United States. For example, it's a good idea to wear a mouth and nose guard/mask if dust is created while working with surface soil, or cleaning chicken coops, disturbing soil beneath bird-roosting sites, or exploring caves.

Because histoplasmosis is more likely to occur in HIV-positive people with compromised immune systems, the best way to help prevent it from occurring is to keep the immune system healthy, such as by using antiretroviral drugs, reducing stress, eating right, and getting plenty of rest.

Are there any experimental treatments in development for histoplasmosis?

If clinical trials for HIV-positive patients with histoplasmosis are being conducted, they will most likely be listed on an interactive web site run by amfAR, the American Foundation for AIDS Research. Another useful service for finding clinical trials is *AIDSinfo.nih.gov*, a site run by the U.S. National Institutes of Health. They have "health information specialists" you can talk to at their toll-free number at 1-800-HIV-0440 (1-800-448-0440).

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a note about this publication

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