# Management and care of an HIV-infected person

General care

Q. How is HIV Treated?
Ans. Currently there is no way to get rid of all the virus once a person is infected. However, new medicines can slow the damage that HIV causes to the immune system. Also, doctors are getting better at treating the illnesses that are caused by HIV infection. Many people now consider HIV infection a manageable, long-term illness.

Q. What If a Friend or Associate Has HIV Infection or AIDS?
Ans. A friend or acquaintance will need your support and understanding, just as with any other life-threatening illness. Assurance of your continued friendship is very important. Most importantly, your friend will want to be treated as usual-as a valuable human being. And remember, casual contact-a hug, a handshake, a kiss on the cheek-poses no threat of infection to you.

**What care should be taken by an HIV-infected person?**

- See a health care professional for a complete medical work-up for HIV infection and advice on treatment and health maintainance. Make sure you are tested for TB and other STDs. For women, this includes a regular gynecological exam. To take his/her prescribed medicines regularly with excellent adherence.
- To inculcate health lifestyles.
- To take regular exercises.
- To eat nutritious food and fresh green leafy vegetable as well as fruits.
- To avoid eating stale food
- To drink clean and potable water to prevent diarrhea illness.
- To avoid crowded places to prevent acquisition of respiratory infections.
- To have regular medical check-ups and avail counseling whenever required.
- To confide in doctors. Remember that confidentiality is maintained and this will help them give correct advice.
- Not to donate blood or any organs.
- To practice safer sex options and avoid unprotected penetrative sex as far as possible.
- Avoid sharing of shaving razor/blade, toothbrush with others, despite low transmission risk to others.
- Women should take decisions related to pregnancy after counseling and medical opinion.
- To maintain a healthy and positive outlook towards life.
- Avoid drug and alcohol use, practice good nutrition, and avoid fatigue and stress.
- Find a support group of people who are going through similar experiences

**ART**

## What is HIV antiretroviral drug treatment?

It is the main type of treatment for HIV or AIDS. It is not a cure, but it can stop people from becoming ill for many years. The treatment consists of drugs that have to be taken every day for the rest of someone's life.

HIV is a virus and when it is in a cell in the body it produces new copies of itself. With these new copies, HIV can go and infect other previously healthy cells. So HIV can quickly spread through the billions of cells in the body, if it is not stopped from reproducing or producing new copies of itself. Antiretroviral treatment (ART) for HIV infection consists of drugs which work by slowing down the reproduction of HIV in the body.

The drugs are often referred as:

- antiretrovirals
- anti-HIV drugs

HIV antiviral drugs

When should a patient be put on combination anti-HIV regimes?

Some of the recent studies indicate that survival of any patient is dependent on a vital "set point" which is decided in the early phase of HIV infection. People having high plasma viral load, despite being in the early stage of HIV disease, tend to die earlier. High plasma viral load is a proxy indicator of tilting the balance in the battle between the HIV and immune system, towards HIV. The newly discovered highly potent anti- HIV drugs belonging to protease inhibitors class reduce the plasma viral load very quickly within 2-4 weeks. However the viral load can return to baseline level within a couple of weeks of discontinuation of development of resistance to it. Some experts believe in the "hit early, hit hard" principle using combination regimes to lower the "set point" However there is no definitive evidence in its favour.

What tests are conducted to monitor the disease stage in HIV infection?

Direct estimation of HIV concentration in the blood can tell us about the disease stage. Earlier the disease status used to be assessed by measuring the effect of the HIV on the immune cells such as CD4 cell count and percentage periodically. This is an indirect estimation p of the disease progression. This assessment costs about Rs. 1200 per test.

The estimation of plasma HIV viral load has become possible. However currently available tests can not tell us the viral load in different lymphatic organs. PVL estimation is very costly (Rs. 6000/test). Both CD4 counts and plasma viral load estimated can be performed periodically to monitor HIV infection. These estimations are essential before initiating the new combination regimes in the AIDS management.

## When should people ON ART start if they have a CD4 test result?

A person who has WHO Stage IV disease they should start whatever the result of their CD4 test. And they should also start if they have stage I or stage II disease and a CD4 count of less than 200.

If the person has stage III disease, then whether they should start depends on their clinical symptoms, and it should also be taken into account whether they have a CD4 cell count of less than or equal to 350.

| Starting Treatment Summary - with CD4 test |
|---|

- WHO stage IV disease regardless of CD4 count
- WHO stage III disease taking into account if the person has a CD4 count less than 350
- WHO stage I or II disease with a CD4 count less than 200.

## If a CD4 test result is not available, when should people start ART treatment?

As has been previously stated, if a person has WHO Stage IV disease, then WHO recommends that they start treatment. They should also start if they have Stage III disease. If no CD4 test is available, then the person should not start therapy if they have Stage I disease.

If the person has Stage II disease, then the total lymphocyte (a type of white blood cell) count (TLC) for the person is needed to help assess whether the person should start treatment. If the person has Stage II disease and a TLC of less than or equal to 1200, then WHO recommends that they start treatment.

When to start antiviral therapy:

When the CD4+ count goes below 350, most doctors begin antiviral treatment (see Fact Sheet 403). Some doctors use the CD4+% going below 15% as a sign to start aggressive antiviral therapy, even if the CD4+ count is high. More conservative doctors might wait until the CD4+ count drops to near 200 before starting treatment. A recent study found that starting treatment with a CD4% below 5% was strongly linked to a poor outcome.

WHEN TO START TREATMENT

- Patients with symptoms of HIV disease or with less than 200 CD4 cells should all be treated.
- Patients with no symptoms who have less than 350 CD4 cells OR viral load over 100,000 should be offered treatment. Consider the risk of disease progression and the patient's willingness to start therapy. Some experts would delay treatment for patients with 200 to 350 CD4 cells and viral loads under 100,000.
- Patients with no symptoms, more than 350 CD4 cells AND a viral load below 100,000 do not need to start treatment. They should get regular viral load and CD4 tests. However, some experts would treat these patients.

WHEN TO CHANGE

Treatment should be changed due to treatment failure, or intolerance of current drugs.

Treatment failure: Within 6 months after starting a treatment, the viral load should drop below 400 copies. Within 1 year, it should be less than 50 copies. If the viral load does not drop this much, change the treatment.
Other signs of treatment failure include:

- An increase in viral load from undetectable to detectable levels;
- Failure to increase CD4 cells by 25 to 50 during the first year; or
- A new AIDS-related illness.

Intolerance: If a patient cannot take the prescribed drugs because of their side effects or interactions with other needed medications, the drugs should be changed

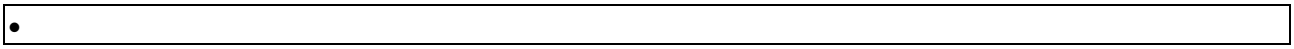
VIRAL LOAD AND CD4 CELL TESTING

viral load should be tested:

- Before starting or changing medications. This provides a reference value;
- About 2 to 8 weeks after starting or changing medications. This shows whether the new drugs are working;
- Every 3 or 4 months. This helps make sure the medications are still working. For patients who haven't started taking medications, it helps decide when to start.

CD4 cell counts should be done:

- When someone first tests HIV-positive
- Every 3 to 6 months to monitor the strength of the immune system



Opportunistic infections

What are opportunistic infections?

People with advanced HIV infection are vulnerable to infections and malignancies that are called 'opportunistic infections' because they take advantage of the opportunity offered by a weakened immune system.

A partial list of the world's most common HIV-related opportunistic infections and diseases includes:

- Bacterial diseases such as tuberculosis, MAC, bacterial pneumonia and septicaemia (blood poisoning)
- Protozoal diseases such as PCP, toxoplasmosis, microsporidiosis, cryptosporidiosis, isopsoriasis and leishmaniasis
- Fungal diseases such as candidiasis, cryptococcosis and penicilliosis
- Viral diseases such as those caused by cytomegalovirus, herpes simplex and herpes zoster virus
- HIV-associated malignancies such as Kaposi's sarcoma, lymphoma and squamous cell carcinoma.

Different conditions typically occur at different stages of HIV infection. In early HIV disease people can develop tuberculosis, malaria, bacterial pneumonia, herpes zoster, staphylococcal skin infections and septicaemia. These are diseases that people with normal immune systems can also get, but with HIV they occur at a much higher rate. It also takes longer for a person with HIV to recover than it takes for someone with a healthy immune system.

How are opportunistic infections managed?

As the body's capability to fight against different infections gets reduced progressively, many opportunistic infections tend to invade the body. Diseases such as tuberculosis, shingles, (herpes zoster), oral thrush, intractable diarrhoeas, toxoplasmosis and cryptococcal meningitis are commonly observed amongst Indian patients. Early detection, timely and effective management of these diseases can improve the survival of these patients significantly.

How is tuberculosis managed in HIV-infected persons?

Tuberculosis is an endemic disease in India. Most of the adult population in India is exposed to bacteria causing TB in their childhood. Reactivation and reinfection of tuberculosis is commonly observed in patients who have progound immunosuppression. Therefore, most of our AIDS patients develop TB in the advanced stage of the disease.

However this does not mean that lay persons should think that all TB patients are HIV-infected. Fortunately, TB is a curable disease, which can be effectively managed at the primary health center level. TB patients due to some major side – effects. Drug – compliance is a very important issue in TB, failing which patients are likely to develop multi-drug resistant tuberculosis (MDR TB). The management of MDR TB is frustrating and associated with very high death rates. More so, such MDR TB cases can lead to development of a secondary epidemic drug-resistant tuberculosis (MDR TB). The management of MDR TB is frustrating and associated with very high death rates. More so, such MDR TB cases can lead to development of a secondary epidemic drug-resistant TB. Early and complete management of TB with good drug-compliance is extremely useful in patient management. Every HIV-infected individual must undergo a screening for TB once a year. Contact with patients having active tuberculosis should be avoided. One can administer certain drugs when a patient shows evidence of impending TB to prevent its occurrence.

How does one manage loose motion in AIDS?

Loose motions lasting for more than four weeks is a common manifestation of AIDS. The diagnosis of the causative germ becomes difficult in the advanced stages of HIV infection.

However, the organisms commonly causing diarrhoea are more commonly seen in such patients In India. The management of such loose motions is essentially the same in any other patients. Additionally, uncommon organisms such as cryptosporidium, microsporidia are being detected commonly after a good laboratory work up. In the advanced stage of the disease, it is difficult to control such a diarrhea. Hence, preventing such diarrhea by improving hygienic practices is likely to be more beneficial. These patients should drink boiled water. This reduces the likelihood of waterborne should drink boiled water. This reduces the likelihood of waterborne infection. Thorough cleaning of the green, leafy vegetables with water before cutting prevents losses of water – should vitamins and infections with certain parasitic germs. Presence of lactobacilli in the intestines is a good barrier for germ that can cause diarrhoea. Daily consumption of curds and buttermilk, which contain lactobacilli, is a good dietary practice.

Does HIV affect the brain and the nervous system ? How are such illnesses managed in AIDS?

Infections of the central nervous system such as cryptococcal meningitis, toxoplasmosis and tuberculosis meningitis are important amongst Indian patient. Cryptococcal meningitis is more often a pre – terminal infection having high morbidity and mortality. The antifungal drugs are not only very costly but also have poor efficiency. Cryptococcus is commonly found in the excreta of pigeons. Though there are no definitive studies to support this, staying away from pigeons may be a prudent practice for HIV- infected patients. Toxoplasma, a parasitis infection can lead to high morbidity but it can be managed effectively using pyrimethamine and sulphadiazine for about 6 weeks. Though there is no equivocal scientific evidence, avoiding contact with pet animals such as dogs and cats may be more practical. Toxoplasmosis can be prevented by administering sulphamethoxazole + trimethoprim as a prophylaxis for pnuemocystis carinii.

How does one prevent development of various opportunistic infections in HIV-infected individuals?

Preventing the occurrence of certain opportunistic illness such as pneumocystis carinii pneumonia, toxoplasma, and certain bacterial infections can be done effectively by administering sulphamethoxaqzole

Trimethoprim to asymptomatic patients. They should not consume alcohol beyond two pegs / day as it can suppress need ongoing counseling support and family support. These patients need ongoing counseling support and family support. These patients must avoid unprotected sex with their partners. This prevents transmission of HIV to the partners and most importantly, sexually transmitted diseases to themselves, which can accelerate HIV disease progression such as herpes genitalis. Every HIV-infected women must undertake a Pap smear examination once a year to rule out development of cancer of the cervix.

Alternative drugs practice of many traditional medical sciences such as ayurveda, homeopathy etc. are based on correcting bodily balance of certain principle which ply a key role in keeping a person healthy. Traditional medical practitioners tend to believe that they can cure AIDS by giving immunopotentiating drugs. Due to a lack of knowledge about conducting clinical trials scientifically hasty conclusions are drawn on simple outcome measures such as weight gain or feeling of well being. Such improvements, dubbed as AIDS cure claims, are not based on adequate scientific evidence. AIDS patients in search of hope tens to get easily attracted towards such claims and take the treatment. However, there is no scientifically documented approach to AIDS cure as of today in any of the medical sciences in the world.

HIV infected individuals should not get misled by such claims. Instead of making such claims in newspapers, they should be referred to the National AIDS control Organisation, New Delhi that facilitates conduct of clinical trials.

Can AIDS be cured by total replacement of blood?

HIV tends to live in many different types of cells of the body blood cells are one of them. Total replacement of blood will remove the pool of HIV-infected cells in the blood. However, it will not be able to remove other cells which may be HIV-infected from the body, like nerve cells. The organs containing these cells will act as reservoirs of HIV infection. Therefore, total replacement of blood will not cure HIV/AIDS.

Some persons may feel that repeated total replacement of blood can reduce the number of virus particles in the body. Repeated, frequent removal of blood may reduce the viral load transiently. However, HIV has the capability to replicate at a high rate and return to original level. This has been clearly evident amongst HIV-infected individuals on the recently discovered highly potent antiretroviral therapy, which is known to reduce the viral load to undetectable levels in blood. If a patient stops these drugs, the concentration of blood is known to return to pre-treatment levels in a few weeks time. Therefore, total replacement of blood whether once many times is unlikely to be of any use.

Is there any effective medicine for AIDS in homoeopathy ayurveda or in traditional medicine?

No, curative drugs are known to exist in any of the practiced disciplines of medicine worldwide. Unfortunately, some opportunistic individuals misguide and mislead patients for their selfish gains. One should not fall prey to such advertisements appearing in the media.

How long will it take to develop a vaccine or a medicine against HIV/AIDS?

HIV is one of the smartest viruses ever to evolve until now. The virus adopts certain innovative approaches to evade a strong and effective response. The virus stays inside the CD4 lymphocyte and gets integrated into the cellular genetic material of the human host. This poses problems to the immune system as it cannot "see" it properly. Moreover, a significant proportion of the viruses tend to remain latent or sleeping inside the cells. The antiviral drugs can act on replicating viruses and not on those who are not. Additionally, the virus keeps on changing its outer coat (envelope) during its replication. These changing forms require a new specific immune response. Since this virus affects the CD4 cells and corrupts its immune responses before finally killing them, there is a qualitative as well as quantitative defect in immune response. The immune response generated against HIV is of a poor quality and ineffective. Thus, HIV poses problems in immune recognition, associated immune response, and also in drug development.

When to start drugs to prevent opportunistic infections:

Most doctors prescribe drugs to prevent opportunistic infections at the following CD4+ levels: Several HIV-related infections (including tuberculosis, bacterial pneumonia, malaria,

septicaemia and PCP) can be prevented using drugs. This is known as drug prophylaxis. One particular drug called cotrimoxazole (also known as septra, bactrim and SMX-TMP) is effective at preventing a number of opportunistic infections. This drug is both cheap and widely available. The World Health Organisation recommends that cotrimoxazole should be offered to the following groups in Africa:[1, 2]

- HIV-positive adults with symptomatic HIV disease or a CD4 count below 500
- HIV-positive pregnant women after the first trimester
- infants born to HIV-positive women
- any child identified as HIV-infected with any clinical signs or symptoms suggestive of HIV.

Some have suggested that the WHO should go further and recommend cotrimoxazole to all Africans with HIV, regardless of CD4 count.[3] However others have cautioned that widespread use of cotrimoxazole may encourage drug resistant strains of bacteria and malaria parasites, and so do more harm than good.[4]

When the immune system is very weak due to advanced HIV disease or AIDS, opportunistic infections such as PCP, toxoplasmosis and cryptococcosis develop. Some infections can spread to a number of different organs, which is known as 'disseminated' or 'systemic' disease. Many of the opportunistic infections that occur at this late stage can be fatal.

HIV-positive people can reduce their exposure to some of the germs that threaten their health. They should be especially careful around uncooked meat, domestic animals, human excrement and lake or river water. However there is no practical way to reduce exposure to the germs that cause candidiasis, MAC, bacterial pneumonia and other diseases because they are generally common in the environment.

Drug prophylaxis is sometimes recommended even for those receiving HAART if they have very weak immune systems or are otherwise considered to be especially vulnerable. They may be advised to stop taking the drugs if their immune system recovers.

For people who have already contracted an opportunistic infection and undergone successful treatment, secondary prophylaxis may be advisable to prevent recurrence. This applies to diseases such as tuberculosis,

Q.How does treatment of TB differ in HIV infected and HIV uninfected individuals? Ans. In general, anti-TB treatment is the same for HIV-infected and HIV-uninfected TB patients, Patients who complete treatment show the same clinical, radiographic and microbiological response to short-course treatment irrespective of whether they are HIV positive or negative. Direct observation of treatment (DOT) is important for HIV-infected TB patients. Treatment with DOTS for HIV-infected TB patients improves their quality of life, and also has been shown to prolong their life span. DOTS can prevent emergence of MDR -TB and reverse the trend of MDR-TB.