

PHARMA HEALTH CLUB

SAFE USE OF MEDICINES FOR BETTER HEALTH

1ST DECEMBER, 2014

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WORLD AIDS DAY

THEME OF 2014: CLOSING THE GAP IN HIV PREVENTION AND TREATMENT SERVICES

World AIDS Day is observed every year on December 1. World AIDS Day was first conceived in August 1987 by James W. Bunn and Thomas Netter, two public information officers for the Global Programme on AIDS at the World Health Organization in Geneva, Switzerland.[1]

This worldwide effort is designed to encourage public support and programming to prevent the spread of HIV infection; provide awareness and education about HIV/AIDS; and demonstrate compassion for those infected or affected by HIV. The red ribbon is the global symbol for solidarity with HIV-positive people and those living with AIDS.

KEY FACTS ABOUT AIDS/HIV [2]

- HIV continues to be a major global public health issue, having claimed more than 39 million lives so far. In 2013, approx 1.5 million people died from HIV-related causes globally.
- There were approximately approx 35 million people living with HIV at the end of 2013 with approx 2.1 million people becoming newly infected with HIV in 2013 globally. Thus, in spite of extensive awareness campaigns, people continue to have misconceptions about the disease and the topic is still considered to be a taboo, leading to more people getting infected due to ignorance.
- Sub-Saharan Africa is the most affected region, with approx 24.7 million people living with HIV in 2013.
- Also sub-Saharan Africa accounts for almost 70% of the global total of new HIV infections.
- HIV infection is usually diagnosed through blood tests detecting the presence or absence of HIV antibodies.
- There is no cure for HIV infection. However, effective treatment with antiretroviral drugs can control the

virus so that people with HIV can enjoy healthy and productive lives.

- Shockingly, pediatric coverage is still lagging, in 2013 less than 1 in 4 children living with HIV had access to antiretroviral therapy, compared to 1 in 3 adults.

ABOUT HIV AND AIDS

The human immunodeficiency virus (HIV) is a lentivirus (a subgroup of retrovirus) that causes the acquired immunodeficiency syndrome (AIDS).[3][4] a condition in humans in which progressive failure of the immune system allows life-threatening opportunistic infections and cancers to thrive. Without treatment, average survival time after infection with HIV is estimated to be 9 to 11 years, depending on the HIV subtype.[5]

Two types of HIV have been characterized: HIV-1 and HIV-2. HIV-1 is the virus that was initially discovered and termed both LAV and HTLV-III. It is more virulent, more infective,[6] and is the cause of the majority of HIV infections globally. The lower infectivity of HIV-2 compared to HIV-1 implies that fewer of those exposed to HIV-2 will be infected per exposure. Because of its relatively poor capacity for transmission, HIV-2 is largely confined to West Africa.[7]

RISK FACTOR ABOUT HIV AND AIDS [2]

1. Having unprotected anal or vaginal sex;
2. Having another sexually transmitted infection such as syphilis, herpes, chlamydia, gonorrhea, and bacterial vaginosis;
3. Sharing contaminated needles, syringes and other injecting equipment and drug solutions when injecting drugs;
4. Receiving unsafe injections, blood transfusions, medical procedures that involve unsterile cutting or piercing; and
5. Experiencing accidental needle stick injuries, including among health workers.

DIAGNOSIS OF HIV

HIV tests are used to detect the presence of the human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS), in serum, saliva, or urine. Such tests may detect antibodies, antigens, or RNA.

WINDOW PERIOD

Antibody tests may give false negative (no antibodies were detected despite the presence of HIV) results during the window period, an interval of three weeks to six months between the time of HIV infection and the production of measurable antibodies to HIV seroconversion. Most people develop detectable antibodies approximately 30 days after infection, although some seroconvert later. The vast majority of people (97%) have detectable antibodies by three months after HIV infection; a six-month window is extremely rare with modern antibody testing.[8]

Name of test

1. ELISA
2. Western blot
3. Rapid or point-of-care tests

PREVENTION OF HIV [2]

1. Condom use
2. Testing for HIV: It is strongly advised for all people exposed to any of the risk factors so that they can learn of their own infection status and access necessary prevention and treatment services without delay.
3. Voluntary medical male circumcision
4. Antiretroviral-related prevention (Use of Medicines)
 - 4.1 Antiretroviral treatment as prevention (TasP)
A 2011 trial has confirmed if an HIV-positive person adheres to an effective antiretroviral therapy regimen, the risk of transmitting the virus to their uninfected sexual partner can be reduced by 96%.
 - 4.2 Pre-exposure prophylaxis (PrEP) for HIV-negative partner
Oral pre-exposure prophylaxis (PrEP) of HIV is the daily use of ARV drugs by HIV-uninfected people to block the acquisition of HIV.
 - 4.3 Post-exposure prophylaxis for HIV (PEP)
Post-exposure prophylaxis (PEP) is the use of ARV drugs within 48 hours of exposure to HIV in order to prevent infection. PEP is often recommended for health-care workers following needle stick injuries in the workplace. PEP includes counseling, first aid care, HIV testing, and depending on risk level, administering of a 28-day course of ARV drugs with follow-up care.
5. Harm reduction for injecting drug users
It includes: needle and syringe programmes; and opioid substitution therapy for people dependent on opioids and other evidence based drug dependence treatment;
6. Elimination of mother-to-child transmission of HIV (eMTCT)
The transmission of HIV from an HIV-positive mother to her child during pregnancy, labor, delivery or breastfeeding is called vertical or mother-to-child transmission (MTCT).
In the absence of any interventions HIV transmission rates are between 15-45%. MTCT can be nearly fully prevented if both the mother and the child are provided with antiretroviral drugs throughout the stages when infection could occur.

MEDICINES FOR HIV/AIDS

Antiretroviral drugs (ART) are medications for the treatment of infection by retroviruses, primarily HIV. Different classes of antiretroviral drugs act at different stages of the HIV life cycle. Combination of several (typically three or four) antiretroviral drugs is known as Highly Active Anti-Retroviral Therapy (HAART).
Drug category: [9]

1. Nucleoside Reverse Transcriptase Inhibitors: e.g. Zidovudine, Didanosine, Stavudine, Lamivudine, Abacavir, Tenofovir, a nucleotide analog and Emtricitabine.
2. Non-nucleoside reverse transcriptase inhibitors: e.g. Nevirapine, Delavirdine, Efavirenz, Etravirine and Rilpivirine.
3. Protease inhibitors: Saquinavir, Indinavir, Ritonavir, Nelfinavir, Amprenavir, Atazanavir, Fosamprenavir, Tipranavir and Darunavir.
4. Entry inhibitors: Enfuvirtide and Maraviroc
5. HIV integras: Raltegravir, Elvitegravir and Dolutegravir

REPUTABLE RESEARCH ON CURING HIV AND AIDS

The results of a study released in 2012, involving fourteen French people living with HIV are one indicator that a 'functional cure' for HIV may be possible. The people involved, known as the 'Visconti cohort', started taking antiretroviral very soon after they became infected. After three years of medication, they stopped taking ARVs, which would usually result in the HIV-infection resurging. However, on this occasion they were able to stop taking the medication and yet remain with low levels of virus in their systems for an average of seven years. [10]

More recently, the potential benefits of a 'functional cure' have been seen in two newly born babies. In March 2014, it was reported that a nine-month-old baby born in California with HIV may have been functionally cured as a result of antiretroviral drug treatments that doctors administered just four hours after birth.[11] Similarly, in March 2013, researchers announced a Mississippi baby born with HIV and given high doses of three antiretroviral drugs shortly after delivery, still appeared to be functionally cured two years on.[12]

BONE MARROW TRANSPLANTS

In November 2008, a pair of German doctors made headlines by announcing they had cured a man of HIV infection by giving him a bone marrow transplant.[13]

GENETHERAPY

In 2014, a clinical trial using gene-editing techniques successfully targeted and destroyed a gene in the immune system of 12 people living with HIV, increasing their resistance to the virus. However, because of the invasive nature of stem cell treatment, it is not viable for the majority of people living with HIV as the body is likely to attack the donor cells.[14]

● ANTIBODIES

In 2014, one study detailed how a research team found and identified these antibodies in a South African woman before cloning them in a laboratory. Despite providing hope for gene therapy in other people, these antibodies were unable to destroy the HIV virus within her own body because HIV mutates too quickly, so she is on antiretroviral treatment. [15]

● HIV VACCINES

Several vaccine candidates are in varying phases of clinical trials.

1. MVA-B: The vaccine was effective in inducing an immunological response in 92% of the healthy subjects.[16]
2. V520 - trial for V520 would be discontinued after it determined that the vaccination appeared associated with an increased risk of HIV infection in some recipients.[17]
3. In February 2003, VaxGen announced that their AIDSVAX vaccine was a failure in North America as there was not a statistically significant reduction of HIV infection within the study population. AIDSVAX was also a component of the prime boost (ALVAC/AIDSVAX) RV 144 vaccine study in Thailand that showed marginal successful results.[18]
4. A killed whole HIV vaccine, SAV001, that has had success in the US FDA phase 1 human clinical trial in Sep. 2013. This HIV vaccine uses a "dead" version of HIV-1 for the first time.[19]
5. In July 2012 a science group speculated that an effective vaccine for HIV would be completed in 2019.[20]

● PROPHYLACTIC DRUG

On July 16, 2012, The Food and Drug Administration approved the first drug shown to reduce the risk of HIV infection. The agency approved Gilead Sciences' pill Truvada as a preventive measure for people who are at high risk of getting HIV through sexual activity.[21]

● AIDS: AYURVEDIC PERSPECTIVE [22]

Though being a modern-day disease, the symptoms, causative factors and treatment for AIDS-like condition are mentioned in ancient Ayurvedic texts like Charak Samhita, Bhavprakash Nighantu, Vaidyachintamani and Chakradatta. AIDS can be correlated with Kshaya or Ojakshaya meaning loss of energy. Shosha is another condition, which results from loss of energy that is similar to AIDS.

● AYURVEDIC TREATMENT PLAN FOR HIV

Ayurveda is 'holistic healing', meaning that not just the use of medicine, but a dietary plan along with the social, physical and mental well-being of the person is necessary for him to get cured. This concept has been adopted by WHO to define 'Health'.

The first step to stem AIDS is to ensure a good and healthy atmosphere for the patient. He should be surrounded by well-meaning friends and relatives who must affirm that the disease state is totally

curable. Nothing negative should be discussed before the patient.

The patient should be given nourishing food which is easily digestible. He should be encouraged to do easy exercise which does not strain his fragile health. He should be kept engaged in fruitful activities which strengthen the good tendencies inherent in him.

Initially, the patient is given tonics and rejuvenators (Rasayanas) to boost immunity levels and to strengthen the system and stimulate appetite. These include single drugs like Galo, Amla, Ashwagandha, Sunth, Harde, Shatavari, and formulations like Trifala Churna and Rasayan Churna.

After gaining some strength, Shodhana (elimination) techniques are used to expel toxins from the body through enemas, purgation and emesis. The medications administered at this stage are soft, ghee-based so that the patient withstands them with ease.

Secondly the blood is purified with appropriate medications and liver corrective measures.

A strengthening diet along with medicated ghee preparations and soups is recommended. Spicy, oily and acidic foods are to be avoided. A little alcohol is recommended as Anupana (carrier) to aid the digestive process, and also remove blockages in the flow of Rasadi dhatus, i.e. srothorodha. Asav and Arisht are such fermented alcoholic formulations containing medicinal drugs.

Patient is advised to do regular exercise which is not strenuous. If the patient is incapable of exercising or running due to weakness, then steaming (Swedanam) is also recommended. Reason behind this is that heated blood is said to weaken, and even destroy, the virus in some cases.

Experience has shown that certain herbo-mineral compounds prepared as per the formulæ prescribed by sages like Agasthya, Charaka, Sarangadhara and others for the treatment of Kshaya have brought about significant results in improving the condition of AIDS patients. The Rasayana and Vajikara effects of these medicines are good for the patients.

Some of the proprietary Ayurvedic medicines achieving good improvement in the quality of life of patients include Chyavanprash & Raktavardhak for Immunity building and Sookshma Trifala to keep away the infection.

● CHYAVANPRASH

An example of an Ayurvedic remedy which may be of use in the treatment of persons diagnosed with AIDS is Chyavanprash. It is most useful and most popular rejuvenator tonic (Rasayana) of Ayurveda.

This is an Ayurvedic herbal formula which increases Ojas, and restores the digestive, eliminative,

respiratory and sexual systems. It is frequently employed in wasting conditions where it has been clinically shown to improve health and assist with weight gain. The main ingredient in Chyavanprash is Amla, which has the highest yield of natural source vitamin C. It is also a rich source of naturally occurring anti-oxidants including bioflavonoids, vitamin B-complex and carotenes (vitamin A). Studies suggest that this berry possesses antifungal, antibacterial and antiviral properties. It assists digestion, lowers high blood pressure and lowers blood cholesterol. Clinical research has shown that it accelerates repair of muscle and skin and enhances natural anti-inflammatory substances.

Chyavanprash also contains about 35 other herbs which amplify and augment the effects of its main ingredient; such a powerful formulation may indeed be helpful in the treatment of persons who have been diagnosed with AIDS. Though many market products of Chyavanprash are available, it is better to be prepared at home, the procedure for which is commonly available.

And finally,
TALK AIDS TO STOP AIDS!

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“It is bad enough that people are **dying of AIDS** but no one should die of **ignorance**,”
- Elizabeth Taylor