*HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION, INCLUDING AIDS: DOES HOMOEOPATHY HAS A ROLE TO PLAY IN ITS TREATMENT?**

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Introduction

Acquired Immunodeficiency Syndrome (AIDS) refers to the occurrence of a life threatening opportunistic infection or Kaposi's sarcoma or both in patients who have not received immuno-suppressive drugs. The disease as of itself is a devastating fatal disease, the origin of which is not known but occurred in the human race first in U.S.A. It was in the summer of 1981 that Gottlieb and colleagues from New York and Friedman Kein and co-workers from California reported independently to the Centres for Disease Control (CDC) Atlanta, USA, the occurrence of a new syndrome of rare form of pneumonia caused by an opportunistic micro organism called Pneumocystis Carinii and a rare cancer called Kaposi's sarcoma in otherwise healthy young homosexual men. It appeared that they had somehow acquired a form of immunodeficiency characterised by the loss of cellular immunity. By December 1981, well documented reports from New York and Los Angeles were published indicating the nature of this illness, its major clinical features, immunological abnormalities and lethal course. By 1982, enough became known about this syndrome as a mysterious disease complex, a cluster of rare manifestations suddenly becoming common in homosexual men. The syndrome was termed as Acquired Immunodeficiency Syndrome (AIDS). HIV infection has since become a global health problem and unprecedented global efforts are being made to contain and prevent its spread. By July 1991, 3,71,803 cases of AIDS were reported to the WHO from 169 countries. Of these 1,79,136 were from United States of America (USA) alone. It is estimated that about 5-10 million people the world over are infected with HIV, the virus which causes AIDS. In India the situation is not as grim as in America and Africa but, the surveillance studies reveal a significant number of persons infected with HIV. By October '91, 85 cases of AIDS were reported from India. Health experts estimate that 25-30% of 1,00,000 plus prostitutes in Bombay are HIV positive. A large number of intravenous drug addicts in Manipur and prostitutes in Tamil Nadu are also stated to be HIV positive and are presently under detention in order to contain the spread of HIV infection. By available accounts the situation in the country is going to be worse in the nineties. In absence of an effective vaccine and therapy, it is obvious that measures to contain and prevent the spread of HIV infection are given priority. Simultaneously efforts to evolve a suitable and effective vaccine and therapy are continuing. It is expected that an effective vaccine against HIV infection will be available in 5-10 years from now.

Epidemiology

Initially the disease was seen in homosexuals only. But very soon AIDS was reported in U.S.A. among intravenous drug addicts (who were sharing needles), persons who had received blood transfusion and blood products, haemophiliac patients who had received factor VIII (a blood product) and babies born to mothers having AIDS. By the time it became clear that AIDS was caused by a transmissible agent with habits similar to hepatitis 'B' virus, primarily showing a heterosexual mode of spread, was reported from some tropical African countries, Haiti and Caribbean Islands. The disease in these places was also spreading through blood transfusion and from infected mother to their new born babies.

In India, however, advent of HIV infection was as late as April 1986 when Surveillance Centres of the Indian Council of Medical Research found 10 prostitutes to be seropositive for HIV out of 3,027 persons from high risk groups screened. First patient of AIDS was detected by the National Institute of Virology, Pune in May, 1986. There has since been substantial increase in the number of HIV seropositive persons and nearly 6,000 from amongst the high risk groups, were found to be seropositive by the middle of 1991. In Bombay and Madras majority of seropositive persons were from amongst the prostitutes, whereas nearly half of the intravenous drug users screened in Manipur were found to be seropositive. As may be seen from the available

* Paper presented at All India Seminar on Cancer and Homoeopathy, Asansol.

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information Bombay, Madras and Manipur are the focal points for spread of HIV infection in the country.

Unlike United States and Europe, in India HIV infection is more prevalent among promiscuous men and women. Second largest group of seropositive persons is of intravenous drug users in North Eastern states. Blood donors are the third largest group of seropositive persons. Although a case or two of paediatric HIV infection have also been reported, HIV infection is not common in the new borns as yet.

Till recently there had been three distinct epidemiological patterns differing from each other in mode of spread or transmission. The *first pattern* covered Western Europe, North America, some areas in South America, Australia and Newzealand. Here infection was generally prevalent among homosexual and bisexual men and intravenous drug users. Sexual transmission was predominantly homosexual. In some urban areas more than 50% homosexual transmission occurred but accounted for a very small percentage of sexually transmitted HIV infection. Transmission of HIV through blood principally involved intravenous drug users.

Pattern-II was witnessed in central, eastern and southern Africa and some parts of Caribbean. Here sexual transmission was predominantly heterosexual and both the sex were equally affected. In these areas about 75-90% female prostitutes, were found to be seropositive. Here transfusion of HIV infected blood has been a serious public health problem. Non-sterile needles, syringes and other skin piercing instruments also play an important role in HIV transmission but their contribution to the overall spread of HIV infection is smaller than that of sexual transmission in Pattern-II areas. However, as a consequence of heterosexual transmission, perinatal transmission still remains a growing problem. In some areas, 5-15% of pregnant women were HIV positive as late as 1988. Perinatal transmission has acquired grave proportions in some parts of Africa in the recent times.

Pattern-III covers Asia, most parts of Pacific region, Middle east and Eastern Europe. In these areas HIV infection occurred through homosexual or heterosexual contact and among recipients of HIV contaminated blood and blood products. Prevalence of HIV infection among high risk behaviour groups such as male or female prostitutes was very low.

Situation has changed during the last couple of years and these broad patterns have given way to regional patterns of spread of HIV infection. While in America and Europe, heterosexual transmission is now far more greater than homosexual spread, African areas are witnessing sharp increase in perinatal transmission of HIV. While the former may be due to altered sexual behaviour among the homosexuals, the latter is undoubtedly consequential to heterosexual transmission of HIV which occurred initially and is still occurring.

Asian scene, by and large, remains the same as it was in the initial stages. Situation in India has, however, changed. Although major mode of transmission, still remains the same as it was initially that is heterosexual transmission, it is now more prevalent among high risk group female prostitutes. The second largest group of HIV infected persons is constituted by intravenous drug users particularly in north eastern region. It is believed that Bombay in Western India, Madras in Southern India and Manipur in Eastern India are now focal points for the spread of HIV infection. In Northern India, Delhi alone now has 464 HIV carriers. Almost all States and Union Territories, barring a few have reported incidents of HIV infection though varying in volume. Experts have predicted a sharp increase in the spread of HIV infection in India over the next few years. Unless we effect extensive screening of high risk behaviour groups such as female prostitutes and intravenous drug users, and blood and blood products before they are transfused and also pregnant women, and take preventive measures we should be prepared to witness a sharp increase in the occurrence of HIV infection in the country.

Another variation in the pattern which is evident now is that HIV-2 (a virus similar to HIV-I) has been isolated in the blood serum of a large number of HIV infected persons in Africa whereas in America HIV infection is mainly because of HIV-I. In India, a few cases of infection with HIV-2 have been reported recently.

Immunopathology

HIV causes a predictabe, progressive derangement of immune function. Almost all the organs of the body may be affected by the disease process.

There are multiple cellular targets of HIV. These are:

i) The Helper T lymphocytes—CD4 cells
ii) B Cells (with CD4 markers)
iii) Monocytes (crosses blood-brain barrier)
iv) Macrophages—act as reservoir for HIV.

The helper lymphocyte, a cell is central to the normal functioning of the immune system. The various parts of the immune system are highly interdependent but the helper lymphocytes or the T4 cells are called the quarterback of the immune system. Among other functions, T-cells recognise foreign antigens or markers on infected cells called 'B' lymphocytes. The B cells multiply and produce specific antibodies that bind to infected cells and to free organisms leading to their destruction. The T4 cells also orchestrate cell mediated immunity, the killing of infected cells by cytotoxic cells such as T8 lymphocytes and white cells known as natural killer (NK) cells. The fall in number of helper lymphocytes (CD4+1 lymphocytes) correlates directly with the type of immune deficiency and type and severity of opportunistic infection. After entering the genomes of the host cells, the

viral DNA (called provirus) remains dormant for a long period. Infection with cytomegalo virus (VMV), herpes simplex virus (HSV) and other similar viruses play a very important role in activating the dormant provirus into rapidly replicating stage. Production of a large number of viral particles could lyse the host cell producing clinically as HIV disease.

The loss of T4 cells seriously impairs the body's ability to fight most invaders. The defenses against viruses, fungi, parasites, and certain bacteria including the bacteria causing tuberculosis are drastically affected. Other organisms, including many types of bacteria tend to be destroyed by the "Humoral" response, newly made antibody or antibodies that were stored after a previous infectious attack, the invader is killed without T cell participation. Thus bacterial infection present a smaller threat to people with a limited number of T cell.

Route of infection

The epidemiological evidence now available suggest that throughout the world HIV is transmitted through sex and blood, and from infected mother to child. However, variation exists regarding principal mode of sexual spread i.e. heterosexual or homosexual, or the principal route of blood transmission i.e. sharing of needles by intravenous drug users or re-use of contaminated needles for medical injections.

1. **Sexual contact** (homosexual/heterosexual)
2. **Blood to blood**—as in intravenous drug users, haemophiliacs; infected blood or blood product transfusion in course of surgery or during the treatment of some coagulatory defect; and by use of infected syringes etc.
3. **Maternofoetal**—through materno-foetal transfusion via placenta or during parturition when extensive blood exposure occurs. Also through mother's milk.

The studies have revealed that HIV is not transmitted through:

Close personal contact

Household
Workplace
School
Health-care workers with exposure to blood

Insects

High risk groups

Habits and circumstances make certain persons more liable to be infected with HIV. Such persons are categorised as those belonging to different high risk groups that are:

1. Homosexual and bisexual men having a large number of different sexual partners;
2. Drug users who use common syringes and needles;
3. People who receive transfusion of blood or blood products i.e., haemophiliacs and persons with coagulatory defects; and
4. Babies born to mother suffering from AIDS.

Spectrum of HIV infection

HIV infection, from the time of infection to the development of full blown AIDS, may be divided into (a) Acute phase, (b) Latent phase, (c) AIDS Related Complex (ARC) and (d) AIDS. The clinical manifestations during these stages are given in Table-1.

Table 1—Spectrum of HIV infection

Stage	Clinical Presentation
Acute phase (sudden onset) (duration upto 14 days)	Fever, night sweats, lymphadenopathy, headache, cough (this phase precedes appearance of antibodies to HIV (sero-conversion) which usually occurs between six and twelve weeks after infection but, may take as long as eight months).
Latent phase	Absence of illness and symptoms.
AIDS Related Complex	Similar symptoms as of AIDS but less severe. No opportunistic infections or malignancies. Weight loss, malaise, fatigues, lethargy, anorexia, diarrhoea and abdominal discomfort, fever, night sweat, headache, itching, amenorrhoea, lymphadenopathy and enlarged spleen. Lesions of skin and mucous membranes are often the first signs.
AIDS	Most severe spectrum of HIV infection. Opportunistic infections, Malignancy (Kaposi's sarcoma—A state of profound cellular immunodeficiency).

Opportunistics infections in AIDS

A number of protozoa, viruses, fungi, mycobacteria and bacteria (see Table 2) take advantage of the immunodeficient state and invade persons with HIV infection. Many of these infectious agents rarely affect healthy individuals but, as mentioned earlier, immunodeficient state provide them with suitable ground to grow thereby effecting systemic changes in the body (see Table 3). Apart from these, various malignancies are also common in persons with HIV infection (see Table 4).

Table 2—Opportunistic infections in AIDS

	Infecting Organism	Type of infection
Viruses	Cytomegalovirus	Pneumonia, disseminated infection, retinitis, encephalitis

	Epstein-Barr virus	Important pathogenic factor in B cell lymphoproliferative disorder and Burkitts lymphoma, oral hairy leukoplakia
	Herpes simplex	Recurrent severe localized infection
	Varicella-zoster virus	Localized or disseminated infection
	Paporvavirus	Progressive multifocal leukoencephalopathy
Fungi	Candida albicans	Mucocutaneous infection, oesophagitis, disseminated infection
	Cryptococcus neoformans	Meningitis, disseminated infection
	Histoplasma capsulatum	Disseminated infection
	Coccidiodes immitis	Disseminated infection
	Petriellidium boydii	Pneumonia
	Aspergillus	Invasive pulmonary infection with potential for dissemination
Protozoa	Pneumocystis carinii	Pneumonia, retinal infection
	Toxoplasma gondii	Encephalitis
	Cryptosporidium	Enteritis
	Isospora belli	Enteritis
Mycobacteria	Mycobacterium avium-intracellulare	Disseminated infection
	Mycobacterium tuberculosis	Disseminated infection
Bacteria	Nocardia	Pneumonia, disseminated infection
	Legionella	Pneumonia
	Streptococcus pneumoniae	Pneumonia, disseminated infection
	Haemophilus influenzae, type B	Pneumonia, disseminated infection
	Salmonella	Gastroenteritis, disseminated infection

Table 3—Spectrum of systemic involvement in AIDS

Gastrointestinal	Oral candidiasis, candidal oesophagitis, high volume diarrhoea, herpes proctitis, dysphagia, colitis, anal ulceration
Pulmonary	Pneumonia due to opportunistic infection, non-productive cough, dyspnoea
Dermatologic	Kaposi's sarcoma, herpes infection, purpura, diffuse hyperpigmentation, alopecia, squamous cell carcinoma
Neurologic	Headache, memory loss, confusion, convulsions, focal neurological deficit, ataxia, meningitis, encephalitis, a severe brain atrophy
Reticuloendothelial system	Diffuse lymphadenopathy, large spleen, B cell lymphoma, reticulum cell carcinoma

Table 4—Malignancies in AIDS

Kaposi's sarcoma
Squamous cell carcinoma
B-cell lymphoma/Non-Hodgkins Lymphoma
Recticulum cell carcinoma

Table 5—Immunological changes in AIDS

Prevalence	Specific Abnormality
Almost always present	Lymphopenia
	Selective T cell deficiency based on a quantitative reduction within the antigenic subset designated by OKT4 or anti-Leu3 monoclonal antibodies (helper-inducer subset)
	Decreased or absent delayed cutaneous hypersensitivity to both recall and new antigens
	Elevated serum immunoglobulins, predominantly IgG and IgA in adults and including IgM in children
	Increased spontaneous immunoglobulin secretion by individuals B cells
	Decreased in vitro lymphocyte proliferative responses to mitogens and antigens (alloantigens and autoantigens)

	Decreased cytotoxic responses by natural killer cells; decreased cell-mediated cytotoxicity (T cell)
Consistently observed	Decreased ability to mount a de novo antibody response to a new antigen Altered monocyte function Elevated serum levels of immune complexes
Occasionally present	Increased levels of acid-labile interferon-alpha Antilymphocyte antibodies Suppressor factors Increased levels of B2 microglobulin and thymosin al

Management

Management of AIDS requires a combination of approaches; preventive, therapeutic and supportive. The need for a coordinated attack is underlined by the management of this unprecedented epidemic. It has been projected that 270,000 cases of AIDS will occur in the United States alone by 1991, five times the American combat deaths in the Vietnam war. (4,7,8) It has been estimated that the first 10,000 patients with AIDS in the United States accounted for or will account for 1.6 million days spent in the Hospital (at a cost of more than $1.4 billion), 8,387 years of missed work, and $4.8 billion in lost potential earnings. (4,9) Already, the financial costs of caring for AIDS patients is having a major impact on both the medical and financial resources of many hospitals, particularly public teaching hospitals. (4,10) It is imperative that until effective treatment becomes available, major emphasis need to be placed on containment of infection through preventive measures.

A high priority has been given to the development of a vaccine against HIV. A vaccine prepared from a recombinant vaccines virus expressing the complete envelope protein of HIV-1, has already been experimentally tried. (11) However, a successful vaccine is yet to be developed. And it is believed that there is no possibility of having an effective vaccine against HIV in the near future. Therefore, it is necessary that prevention must involve more traditional public health interventions. These methods include antibody testing to protect blood and organ recipients; education about the danger of sharing needles during intravenous drug use; use of disposable or sterilised syringes/needles for medical injections; education regarding safe sexual practice; role of promiscuity and anal intercourse in facilitating transmission of the virus and use of condoms.

Therapy for patients with AIDS may be aimed at HIV infection itself or at the opportunistic infection(s) and malignancies associated with it.

Homoeopathy views the situation in context with other viral infections and takes into account the person's state preceding the infection with HIV. As may be seen, the persons who present with AIDS are seldom healthy in true sense and, therefore, provide the HIV with suitable ground to grow. It, therefore, aims at treating asymptomatic HIV carriers as well as patients with ARC and AIDS. Studies conducted by Strange M., Badgley L.E. and Jeaner M., on ARC and AIDS patients do suggest that homoeopathic medicines are useful in checking the progression of infection with HIV. It is now established that homoeopathic medicines enhance the immune function and assist the infected organism to react more vigorously. However, only an organised study will reveal the usefulness of homocopathic medicines in HIV infection, including AIDS.

The Central Council for Research in Homoeopathy has made a beginning and undertaken research studies in HIV infection at its Regional Research Institute, Bombay and Clinical Research Unit, Madras.

In Bombay, a total number of 112 HIV carriers, mostly asymptomatic, have been registered since May, 1989. These persons are being treated with homoeopathic medicines on the basis of their constitutional (physical and mental/emotional) characteristics. Of these 12 patients have been found to be non-reactive to ELISA (on two or more different occasions) after being treated for a period varying from 3 to 16 months. Efforts are being made to confirm the outcome of treatment. Initial studies show that homoeopathic medicines such as Syphilinum, Tuberculinum, Phosphorus etc. may prove to be useful in the treatment of asymptomatic HIV carriers. The studies are continuing and it will be quite some time that a definite conclusion about the role of Homoeopathic medicines in the treatment of HIV infection/AIDS is formed.

Asymptomatic carriers, in absence of any tell-tale signs and symptoms, would require constitutional remedies from amongst the antisycotic, antitubercular and antisyphilitic drugs such as Arsenicum album, Arsenicum iodatum, Bacillinum, Baryta carbonica, Argentum metallicum, Calcarea carbonica, Calcarea iodata, Carbo animalis, Carbo vegetabilis, Causticum, Fluoricum acidum, Hepar sulphuris, Kali carbonica, Kali iodatum, Lachesis, Mercurius solubilis, Mercurius iodide, Natrum muriaticum, Natrum sulphuricum, Nitricum acidum, Phosphorus, Sepia, Silicea, Sulphur, Syphilinum, Thuja and Tuberculinum, depending on their individualised presentations.

Those who present with acute seroconversion or ARC or AIDS will require, depending upon presenting signs and symptoms, one or more of the following remedies.

Acute seroconversion	ARC/AIDS
Baptisia tinctoria Belladonna Bryonia alba Ferrum phosphoricum Gelsemium Hepar sulphuris Mercurius solubilis Pulsatilla nigricans Rhus toxicodendron	Alumina, Agaricus, Apis mellifica, Aurum metallicum, Aranea diadema, Arsenicum album, Arsenicum iodatum, Argentum nitricum, Belladonna, Baryta carbonica, Baryta muriaticum, Berberis vulgaris, Bryonia, Calcarea carbonica, Calcarea fluoricum, Calcarea iodatum, Calcarea phosphoricum, Carbo animalis, Carcinosin, Cascara sagarada, Cistus canadensis, Clematis erecta, Convallaria, Conium maculatum, Cortisone, Cyclosporine, DNA, Dulcamara, Fluoric acid, Hepar sulphuris, Kali carbonica, Kali iodatum, Kali muriaticum, Lachesis, Lycopodium, Magnesia phosphoricum, Magnesia sulphuricum, Mercurius solubilis, Mercurius iodatum, Natrum muriaticum, Natrum phosphoricum, Natrum sulphuricum, Nitric acid, Nux vomica, Parotidinum, Phosphorus, Phytolacca, Pilocarpus, Plumbum iodatum, Pulsatilla, Pyrogenium, Rhus toxicodendron, RNA, Sambucus niger, Sanguinaria canadensis, Sarsaparilla, Sepia, Scrophularia, Silicea, Sulphur, Syphilinum, Terebinthina, Thuja, Tuberculinum, Typhoidinum.

A broad picture of pathogenesis of ARC/AIDS can be drawn from the available information. Following are the various signs and symptoms (presented in the rubric form) as included in the Kent's Repertorium Generale by Jost Kunzli von Fimmelsberg—Indian English Edition—1987 which are commonly observed in patients with ARC/AIDS.

1. Reaction, lack of — p. 1152
2. Irritability (physical), lack of — p. 1129.
3. Perspiration, night — p. 1068
4. (a) Perspiration, night, lasting all night without relief — p.1068
   (b) Perspiration, night, long lasting, musty night sweats — p. 1068
5. Diarrhoea — p. 521.
   (a) Diarrhoea, emaciated people, in — p. 524
)b) Diarrhoea, septic conditions, from — p. 526
6. Insidious fever — p. 1062
7. Pain (Head) — p. 110
8. Emaciation — p. 120
9. Inflammation, glands — p. 1128
10. Throat, pain, swallowing on — p. 390
    (a) Throat, discolouration, white spots — p. 383
    (b) Throat, cheesy looking spots — p. 381
    (c) Mouth, discolouration, white — p. 341
    (d) Mouth, discolouration, white, cheesy — p. 341
    (e) Mouth, discolouration, white, milky — p. 341
    (f) Mouth, discolouration, white silver, all over — p. 341
11. Respiration, asthmatic — p. 650
    (a) Respiration, difficult — p. 652
    (b) Respiration, impeded, obstructed — p. 657
12. Cough, dry — p. 667
13. Rectum, ulceration — p. 540
14. Memory, weakness of — p. 51
    (a) Dementia with sadness — p. 28
15. Cancerous affections — p. 1111
    (a) Cancerous affections, glands — p. 1111
16. Skin, discolouration, bluish — p. 1077

However, a patient of ARC/AIDS shall require far more attention and a detailed independent study of his physical and mental state. The latter is far more important as this indicates the effects of physical illness on the psyche and produce a variety of psychic symptoms such as anxiety, irritability, anger, despair, frustration, helplessness, jealousy and various types of fears. Few are able to resign themselves and may turn to love and religion. All these psychic changes will have to be taken into account for offering individualistic therapy.

These psychic changes bring us back to the third approach: rehabilitation of patients with AIDS. Effective clinical management of AIDS patients require sufficient attention to social, ethical, psychological, public health and economic issues which have been raised as a consequence to this unprecedented epidemic. (12) There is an urgent need to provide humane care to AIDS patients as we would accord to any other patient, and take measures to dispel fear and misconception about AIDS from the minds of general population. This is essential for the prevention of further spread of the epidemic until effective vaccine and treatments are developed.

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"We may regard matter as being constituted by the regions of space in which the field is extremely intense.... There is no place in this new kind of physics both for the field and matter, for the field is the only reality."

Albert Einstein