

EDITORIAL

AIDS — THE FACTS

INTRODUCTION

The acquired immunodeficiency syndrome (AIDS) is caused by a human retrovirus known as human T-cell lymphotropic virus Type III (HTLV-III), also called lymphadenopathy — associated virus (LAV). It is possible that the virus will be renamed the human immunodeficiency virus in the next few months. No disease in modern times has caught the imagination of the public through extensive and often sensational media reporting. Richard Smith (1) a medical editor in London reports "Many of the good people of provincial Britain live in dread of catching the acquired immunodeficiency syndrome (AIDS). They are scared to go swimming for fear of 'homosexual secretions' in the water. Pubs are worrying places because you simply can't know who last drank out of the beer mug, and the same thing applies to Holy Communion — particularly with so many odd people in the Church these days. Eating out has also become worrying as the cook may be gay and might cut his finger while preparing the food!" With this "panic in the streets" atmosphere it behoves the medical and other health-related professions to report the disease as it is in a rational and accurate manner.

Epidemiology

As of April 1986, the Centers for Disease Control (CDC) Atlanta, Georgia report that there are 19,000 cases of AIDS in the United States. 1,000 new cases are reported each month and by using a mathematical model it is estimated that the number of cases will double in 12-14 months time. Of the reported cases about 50-53% have died. More deaths are caused by AIDS than poliomyelitis in the worst epidemic in 1952. Hence one must not underestimate the deadlines of this disease.

It is estimated that about 1.7 million Americans are positive for the anti-body against the virus. There is therefore no question of quarantine. The virus probably originated from Equatorial Africa in the early 1970s and introduced into the United States in the late 1970s. Unlike the ubiquitous common cold and influenza, only the following groups are found to be at risk namely homosexual and bisexual men, intravenous drug users, transfusion recipients like haemophiliacs and heterosexual partners of these risk groups. As of now there is no evidence to suggest the disease has effected the "straight" population or community at large.

In the gay men population between 20-70% have antibodies to the virus; the same number is for intravenous drug abusers. In the whole of the U.S. AIDS is the cause of death in 10% of unmarried men between 25-44 years age group; in Manhattan it is 45% and in San Francisco 60%. In New York city, one-third of all deaths in intravenous drug abusers are due to AIDS, and AIDS rivals haemorrhage as the leading cause of death in haemophiliacs.

Transmission

Transmission is by intimate sexual contact between gay and bisexual men, by transfusion of contaminated blood products and sharing of needles by intravenous drug abuser. Transmission to children occurs either in utero or during the birth process by the infected mother but not at home or school in the sense of living, studying or playing together. Although the virus has been found in tears, saliva, urine, vaginal secretions besides blood and semen, the amount present is so small as to pose no danger at all. Hence one will not get AIDS by talking, shaking hands, breathing the same air as an AIDS patient.

The other important fact to remember is the AIDS virus is a very inefficient virus in terms of transmission. It is a cell-associated virus i.e. it needs to enter a specific cell in the blood e.g. a lymphocyte or macrophage to cause any effect and a large inoculum is needed. The virus is killed by routine handwashing with soap, alcohol, phenols, bleach, hypochlorite, cedax, hydrogen peroxide and routine decontamination of endoscopes and bronchoscopes by gas sterilisation. It took the medical profession three years to realise that AIDS is a contagious disease (i.e. from 1982 onwards). Before that, doctors and surgeons treated AIDS patients in the same way as ordinary patients and yet not one single health care worker i.e. physician, surgeon, bronchoscopist, nurse or laboratory technician has contracted the disease. Medical personnel is not at risk in terms of standard care of AIDS patients using the standard guide-line. (2)

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Editor

A potential hazard for nurses and house staff is needlestick injury. In the San Francisco General Hospital, 301 health-care personnel with 402 needlestick injury (one person was stuck 11 times!) were followed up for various periods of time. There was not one case of AIDS or even seroconversion from negative to positive. Two cases of definite seroconversion following needlestick injury were reported in the literature (3, 4). In both cases the injury involved actual injection of small amounts of patient's blood into the injured rather than a prick. Hence proper hand washing, proper disposal of needlesticks and prevention of contact with patient's body fluids using appropriate gloves, mask, gowns, and goggles whenever necessary can totally eliminate transmission of the disease to health care workers. These are the same measures recommended for hepatitis B.

In certain parts of Africa, equal number of males and females are affected by the disease (ratio 1:1). In the U.S. AIDS is an overwhelming male disease. The reason for this disparity is unknown but anthropologists suggest that certain cultural/sexual practises unique to Africa may be responsible e.g. scarification, tattooing and female circumcision which may allow more blood contact during sexual acts. The main reservoir of the AIDS virus in Africa is the female prostitute and they are reputed to have more sexual partners during their working life than the greatest sexual athletes in Los Angeles or San Francisco!

Clinical Spectrum

It is now accepted that the clinical spectrum of opportunistic infections and Kaposi's sarcoma represent only the tip of the AIDS iceberg. Acute infections with the virus may be asymptomatic or associated with an infectious mononucleosis-like illness. There follows a latent period of months or years during which the infected individual is infectious to others but clinically well. During the latent period, HTLV-III antibody develops in at least 96% of individuals and virus can be cultured from at least 80% of those with antibody two years after infection. This implies that infection once acquired is long-lasting in the vast majority of individuals.

The serious long-term sequelae of AIDS is the ablation of the cell-mediated immune system as a result of loss of helper T lymphocytes. Death of the host results from opportunistic infections (clinical AIDS) chiefly pulmonary (60%) and malignancies (20%) like Kaposi's sarcoma and B-cell lymphoma.

Over 30 opportunistic infections have been described including pneumocystis, candida, toxoplasmosis, cryptococcus, CMV, mycobacterium avium intracellulare and cryptosporidium. A more recently recognised late consequence of the AIDS virus is a progressive dementia which appears to be due to infection of brain cells with the virus. Receptors for the virus have been discovered in neurons and brain tissue and CSF contains large quantities of the virus.

Between the asymptomatic carrier and clinical AIDS is the syndrome of ARC — AIDS related complex or conditions. This consist of generalized lymphadenopathy with or without constitutional symptoms like fever, sweating, fatigue and weight loss. Progression of ARC to AIDS is more common in New York (20% per annum) than elsewhere (3-7% per annum).

Laboratory Investigations

Anaemia, leukopenia, thrombocytopenia and raised ESR are common in patient with infection. Both the ELISA and Western Blot used for screening are extremely sensitive and specific tests. Screening of blood for evidence of HTLV-III infection is "big business" as there are an estimated 100,000,000 units of blood to screen annually in the United States alone! Unfortunately as yet no single reliable test is available which is a good prognostic indicator and identify asymptomatic carriers who will eventually develop clinical AIDS. This has been an area of intense research.

Management of AIDS

There is as yet no anti-viral drug available that can inhibit the virus or cure the disease. None of the "front page experimental drugs" have shown any benefit under close scrutiny. Hence treatment of the AIDS patient at the moment must be empirical and individualized. Anti-microbials and cytotoxic drugs are at the moment available for certain opportunistic infections like pneumocystis and malignancies

like Kaposi's sarcoma. Eventually the patients will succumb to one of these complications. Treatment options are in fact very limited and must therefore focus on quality of life issues. The aim must be to get such patients back to their own environment as early as possible, get them in touch with counsellors and social organisations. In San Francisco a hospice has been established for treatment of terminal AIDS patients. Generally, private rooms are unnecessary for AIDS patients unless they have infectious complications with a potential of spread to other patients. Very few AIDS patients are ventilated since not many can come off respirators. In the San Francisco General Hospital not many patients are even admitted to the ICU. The emphasis is on outpatient management and provision of domiciliary care. The aim at the moment must be unfortunately a good and dignified death for these unfortunate individuals.

Vaccine

It is possible that a reliable vaccine will be available in two or three years time. At the moment a vaccinia recombinant prototype is being tested in mice. The next step will be to test the safety and efficacy in primates like the chimpanzee before releasing it for tests in humans. The vaccine most probably will be effective in the uninfected high risk individual rather than the asymptomatic carrier or symptomatic patients.

Conclusion

There is really no reason for the hysteria surrounding AIDS. It is a deadly disease no doubt but taken in the correct perspective more people have died from motor-car accidents in the past three years in the U.S. than AIDS for the same period. Although it is estimated that 20% of infected individuals will eventually develop AIDS recent studies have suggested that the proportion is less if the infected individuals cease to practice their particular life style like rectal receptive intercourse between homosexuals. This is probably related to repeated infections by the virus. Hence education and counselling among high risk groups cannot be over-emphasized. Finally AIDS is entirely preventable for the health-care worker if we follow the guide-line put out by the CDC and our own Ministry — something we have been doing for years with regard to diseases like typhoid, cholera, dysentery and hepatitis. No health care worker with documented parenteral or mucous-membrane exposures to blood or other body fluids of patients with AIDS has ever acquired signs or symptoms of the disease (5). However this does not mean we can be complacent. The "golden rule" still is prevention is better than cure.

REFERENCES

1. R Smith: AIDS — misplaced and better-placed hysteria. *Med J Australia* 1985; 143: 35.
2. Special Report: Infection-control guidelines for patients with AIDS. *New Eng J Med* 1983; 309: 740-4.
3. Needlestick transmission of HTLV-III from a patient infected in Africa. *Lancet* 1984; 2: 1376-7.
4. Stricof RL, Morse DL: HTLV III/LAV Seroconversion following a deep intramuscular needlestick injury. *New Eng J Med* 1986; 314: 1115.
5. Special Report: Occupational risk of AIDS among health care workers. *New Eng J Med* 1986; 314: 1127-32.

RESOURCE MATERIAL

1. Panel Discussion: Problems in the diagnosis and management of the Acquired Immunodeficiency Syndrome. American College of Physicians Annual Session, San Francisco, April 1986.
2. Workshop on The Acquired Immunodeficiency Syndrome. American College of Physicians Annual Session, San Francisco April 1986.