Punjab Univ. J. Zool., Vol. 10, pp. 111-123, 1995

AIDS: STATUS OF OCCURRENCE AND MANAGEMENT IN PAKISTAN

ABDUL BARI AND ALI ABBAS QAZILBASH

Departmet of Biological Sciences, Quaid-i-Azam University, Islamabad, Pakistan

CONTENTS

Abstract: Acquired immune deficiency syndrome (AIDS) was first recognized as a clinical condition in 1981 and was thought to be confined to a specific population group - homosexuals. However, since then AIDS has received great media coverage which has revealed that it is both a homosexual and heterosexual disease with a fatal outcome. It is known that the disease spread from central and western Africa to the Caribbean eventually manifesting itself in the United States and Europe. In Asia, the disease still remins a taboo and is not well documented. Due to this reason that the spread of the AIDS virus remains un-checked in many Asian countries. According to WHO, the AIDS virus has infected over 2.5 million individuals throughout the world. The HIV (Human immunodeficiency virus) epidemic in Asia is growing at an alarming rate; in Thailand the estimated cases of infection have risen ten-fold and in India it has tripled since 1992. Thus it is estimated that by the end of the century more than 10 million Asians will be infected with HIV. In Pakistan, three social taboos are driving the spread of disease, effectively blocking prevention and care - denial, discrimination and disempowerment. Today a very conservative estimation of HIV infections in Pakistan, as reported by the National Institute of Health (NIH), Islamabad, stands at 850 HIV-positive cases, of those 46 developed AIDS and have since died. Compared to the figures released by the same organization a year ago there were 733 HIV cases - an increase of 123 cases in a matter of one year. These estimates do not reflect the true scenario. If the first case of HIV was detected in 1987, as is presently thought then the estimated cases of HIV could be around 10,000-20,000 persons, based on epidemiological parameters. However, if there were cases before 1987 but not diagnosed as HIV/AIDS cases - which is not unreasonable to presume - then based on the statistical parameters the estimates could be much higher - closer to 50,000 - 100,000. In 1990, India officially had 2,700 HIV positive casess; by 1993 the official figures rocked to 500,000 while the actual estimates hover around 2.7-3.5 million. According to an AIDS researcher, Pakistan is at the same stage at which India was three years ago, which necessitates immediate action on strategies for the prevention and control of HIV/AIDS. This includes universal precautions; compulsory testing of all donated blood; surveillance; comprehensive training of health workers; safer sexual behavior; sexually transmitted diseases STD management; condom procurement and distribution; counseling and rehabilitation of HIV infected individuals; management, monitoring and evaluation of the program. The largest hurdle of resistance that such a campaign can encounter is that from the nation's clergy. Such a reaction should be treated with patience and candidness and the clergy should be convinced that such a campaign is necessary to combat this disease and that any misleading information will have a detrimental effect on the whole nation.

Key words: AIDS, Pakistan, Status.

INTRODUCTION

When AIDS was first recognized as clinical entity in 1981, it was thought to be a disease present only in the United States of America and among a population group, namely homosexuals; hence the first suggested name GRID (Gay-related immune deficiency). It was realized soon after that the disease was not restricted to USA alone,

but cases were reported in other countries in Europe, south and central America in 1982 and 1983.

The term AIDS describes only the most serious form of an infection which is caused by a specific virus called the human immunodeficiency virus (HIV). The viral origin of this disease was disccovered in 1983/84, simultaneously in the USA and France. In 1984, Gallo and co-workers described numerous isolates of a retrovirus from homosexual and hemophiliac patients with AIDS and AIDS related syndromes. Subsequent work by a number of investigators has named the AIDS related retroviruses as type-1 (HIV-1). More recent work on HIV has shown the existence of simian immunodeficiency viruses SIV_{sm} and SIV_{mac}. Lymphadenopathy associated virus-2 now appears to be a member of a distinct family of human lentiviruses called HIV type 2 (HIV-2).

Between 1985-89 there was considerable media coverage about AIDS to create the much needed awareness, thereby becoming the focus for priority attention by politicians, public health workers and eventually the general public. Now there is conclusive evidence that AIDS is a new disease - the disease of the 90s - with a fatal outcome, and that there are no specific drugs for it.

In recent history, there has been no disease which has appeared so rapidly and caused so much anxiety and dread over the entire globe. Moreover, it is not known how and when the disease reached man, or what will happen to humanity, over a long perios of time due to AIDS, if it is not conquered.

No one knows how the infection spread to man, but it seems to have occurred in Africa in the area south of the Sahara desert, it spread to the rest of the world was probably via Haiti and thence carried by the tourist to the United States in the 1970s. As with any viral illness in an unprotected population the disease has spread rapidly and fatally.

HIV/AIDS virus is a retrovirus that infects T-cells (CMI) and macrophages having RNA genomes only with reverse transcriptase and a protein capsid with a bi-lipid layer with receptors sites. RNA injected into the T-cells with the help of envelop gene enzyme and RNA reverse transcriptase with the help of cell metabolites, forms the ground work gene strands of virus that enters the nucleus and initiates the synthesis of mRNA (protein synthesis), and genomic RNA. Eventually, the viral proteins assemble at the cell surface and organization of the virus occurs at this site; the virus is then pinched-off. Mode of action by the virus could be described as: early action latency pattern.

Early action: CD4 is the receptor protein of HIV located on the macrophages and T-cells. However, CD4 is not the sole requirement. Some CD4 free cells can be infected, hence receptor mediated infection in not the only method of viral infection. Atrocities of B-cell, skin cells, bowl cells etc. could be infected by HIV.

Latency pattern: HIV virus has developed a latency pattern as well to lengthen the age of the host which can be as long as 12 years, but the host is still a carrier. Later on,

the virus enters the lytic cycle/productive stage; eventually the virus kills the host. HIV attacks both activated and inactivated cells. Activated cell infection leads to rapid viral growth, host cells are killed and a full grown infection results. Inactivated cell infection leads to latent periods, "Post-integrated latency" and "Pre-integrated latency."

Macrophages are reservoirs of viral particles. Building-off of virus within the cell can occur. A complete virus can be maintained within the macrophage and the virus does not kill it.

Spread of viral infection

HIV-1 infection has been reported throughout the world in both developed and developing countries and is found predominantly in homosexual and bicexual men and intravenous drug users. Hemophiliacs, transfusion recipients, sexual partners among infected persons, and infants born to infected mothers are also at high risk. In many parts of Africa and the Caribbean, HIV-1 is found predominantly in heterosexual, transfusion recipients, and infants born to infected mothers. HIV-2 is found predominantly in west Africa, Portugal and Brazil.

However, both HIV-1 and HIV-2 are spread through sexual contact, exposure to contaminated blood or blood produsts, and from an infected mother to her offspring. In 1990 it was estimated that between 800,,000 and 1.3 million individuals in the United States were infected with HIV, it is not known what proportion of these individuals will develop AIDS. The average incubation period has been worked out to be approximately ten years.

Clinical manifestations

During the initial phase of infection with HIV there is an acute syndrome with symptoms which include fever, sweats, myalgia or arthralgia, sore throat, lymphadenopathy, nausea, vomiting, diarrhea, headaches and rashes. During the acute infection there may be a decrease in the number of circulating T4 lymphocytes. Later on, there is a long and variable asymptomatic period of infection. During this period there may be a slow, progressive decline in T-4 cell numbers and an inccrease in T8 cells. Some individuals may, however, maintain a constant, normal level of T4 cells during the asymptomatic course of the disease.

AIDS is a late outcome of infection with HIV which is a disease characterized by a marked depletion of T4 cells, resulting in a reversal of the T4/T8 cell ratio; normally 1.5:1 to 2.0:1. The ever increasing immune deficiency renders the patient vulnerable to a wide range of life-threatening infections and neoplasms, the most common being *Pneumocystis carinii* pneumonia and Kaposi sarcoma. Another manifestation of HIV is the AIDS-dementia complex (AIDS encephalopathy). This manifestation is characterized by neurologic abnormalities, progressive dementia and peripheral neuropathy. This may occur in the absence of opportunistic infection.

Transmission of HIV

It is transmitted by both homosexual and heterosexual contact. In the case of infected males the virus occurs in the semen. It also occurs in the blood of infected males and females. During sexual contact, the virus gains entrance to the blood stream of an uninfected individual, male or female, via the microscopic breaks in the mucous membrane lining of the genital tract or the rectum in case of male homosexuals. This virus can also be transmitted by residual contaminated blood on hypodermic needles and syringes that are shared among intravenous drug users. It is important to note that not only those who use so-called street drugs, but also those who use injectable substances such as steroids and insulin, can become infected if they share needles and syringes. HIV can aslo be transmitted by blood transfusions with comtaminated blood. Another important route through which HIV can be acquired is from a HIV positive mother to her child. Not all children born to infected mothers become infected. Viral transmission can take place either before birth, or during the process of birth through exposure to mother's blood or other infected fluids. A few cases indicating HIV trasmission through breast milk are also on record.

HIV is mostly present in semen, vaginal secretions and blood of infected individuals. It is also found in the saliva, tears, urine and the feces of the infected individuals. However, HIV virus cannot be acquired through casual contact involved in daily life, such as hand-shaking and coughing. Besides this, transmission of the virus from an AIDS patient to healthy individuals through the sharing of food, towels, cups, razors and even tooth brushes has not yet been documented.

Among doctors and nurses, who have been exposed to HIV infection, although very rare, they have had accidental infection through pricks of contaminated needles and the sudden splash of blood. Nevertheless, health care personnel are at a higher potential risk than the general population, therefore, `universal precautions' are now available for the health care workers, and should be practiced while taking care of this kind of patient. The universal precautions are being reproduced for the readers later on in this paper.

Can HIV be transmitted via insect-bites?

It is known that small amounts of residual infected blood on contaminated hypodermic syringes and needles can transmit HIV among drug users. Mosquitoes and other arthropods that also suck blood, hypothetically can play a similar role and can be safely claimed as "flying syringes". They could carry the HIV virus from an infected person and inoculate it into healthy individuals. Although, theoretically the possibility does exist that insects may transmit the AIDS virus, in practice it is now evident that HIV cannot be transmitted through mosquito or other insect bites.

In laboratory studies, researchers at the centers of disease control (USA) have shown that even in case of mmosquitoes injected with HIV-contaminated blood, the virus survived for only one hour in the insects and does not multiply either in the mosquito or in the tissue cultures of mosquito cells. Moreover, current efforts to transmit the virus from the insects to human cells in the laboratory have been

unsuccessful.

Global AIDS situation

According to WHO Global Program on AIDS, it is estimated that in south Asia and south-east Asia, HIV infections are now over 2.5 million, one million more than just a year ago. Furthermore, the HIV epidemic in Asia is growing at an alarming rate, for example estimated infections in Thailand have risen ten-fold since early 1990 and in India they have tripled since 1992. According to WHO estimations, by the year 2000, more than 10 million Asians will be infected with HIV, if this trend continues. Worldwide, over 6,000 people are becoming infected with HIV everyday, more and more of them in Asia.

WHO further estimates that another 3 million men, women and children have been infected with HIV. The total thus now stands at over 17 million.

Three societal taboos are driving the spread of the disease and are effectively blocking prevention and care - denial, discrimination and disempowerment. It is clear that until we overcome these social prohibitions we will never bring this deadly epidemic under control. Discriminatory laws and practices must be over ruled. Political leaders must take courage to provide leasership in disease control measures.

There is now global consensus that with sufficient resources and political will, millions of new infections can be avoided. Education is the foundation of change, hence it is essential to educate the people not only about HIV and AIDS but also on other health promoting basic and social information. Starting points for health education should be schools, colleges, universities and, last but not the least, remote areas where illiteracy rules supreme. This is further true of Pakistan where literacy rate is meager 26%.

WHO calculates that implementing the basic prevention programs in Asia would cost between US$ 0.75-1.5 billion. This cost appears to be too high for developing countries, but cost should not be used as an excuse, since it represents less than 0.03% of Asia's total economic output. An investment of this kind would prevent an estimated 5 million new infections by the year 2000. The only possible conclusion from these figures is to act now, before it's too late!

AIDS in Pakistan

The first case of the disease (AIDS) in Pakistan was reported in 1987. During 1986-87, 1,363 subjects were screened for HIV infection in Karachi, two were confirmed positive. These two were married females who had received multiple transfusions and denied other risk factors. Another three confirmed cases of HIV infection were recorded in a group of 413 individuals screened from Karachi in 1990; two were foreign nationals from Tanzania and Uganda and the third was a Pakistani residing in Saudi Arabia who had received multiple blood transfusions following a car accident in 1981. There is great paucity of AIDS data and studies in Pakistan, only a few publicatios are available so far.

There seems little doubt that the AIDS horror has finally hit home, with the steady rise in the number of people testing HIV positive in Pakistan, and the Gulf states cntinuously deporting AIDS infected Pakistani workers. Over the last few years, in fact, the magnitude of the deadly virus has suddenly spiraled into a frightening statistical countdown. HIV estimates, meanwhile, have crossed such dangerous levels that the usually tight lipped officials at the National AIDS Prevention and Control Program have been forced to concede that the number of infected cases is much higher than they had ever acknowledged before.

It was the most embarrassing situation for the officials of National AIDS Prevention and Control Program when members of the College of Physicians and Surgeons challenged their figures on the state of AIDS in Pakistan in a seminar held in December 1993, before they had even finished presenting their report. Representatives of Agha Khan University Hospital in Karachi claimed that they themselves had confirmed 56 cases of infection with HIV, while another 21 cases had tested positive but awaited confirmation. A Pakistani doctor working in UAE pointed out that the Emirate has deported a batch of 353 Pakistanis who tested positive for HIV. This figure alone is more than the 251 HIV positive and 36 full blown AIDS cases that the National AIDS Program (NAP) had acknowledged in more than six years of operation since its inception in August 1987. Such controversies over the recorded figures do prevail and require investigation.

In January 1994, the official figures of HIV and AIDS cases for December 1993 (251 HIV + 37 AIDS) were revised to 733 cases of HIV and 38 cases of full blown AIDS. Where did these new cases come from in a period of less than one month? There are no breakdowns given by the reporting agency. Nothing is reported about where these cases were detected. If they actually reflect cases confirmed over one month, then this is a monumental increase. If these cases existed before, they seemed to have escaped NAP's attention. One may again wonder if the new figures reflected reality.

The presently projected figures paint a frightening picture. They seem to indicate that the AIDS menace is finally taking-off in Pakistan. Compare these figures with March 1990, when only 33 people had been confirmed as HIV positive while 13 had developed AIDS. This clearly refutes the myth of non-existence of AIDS in Pakistan and if at all it existed, it was limited to foreigners and those Pakistanis who have been infected abroad. By showing the existence of indigenous cases (those who have contracted the virus within the country) the reality of AIDS has now been confirmed in Pakistan, even though the Government still continues to deny the existence of the disease in the country.

According to the official statistics, more than 250,000 individuals have been screened for HIV-1 infection in Pakistan and as of January 1995 a total of 850 cases of sero-positivity have been detected. Of those 46 who developed full blown AIDS, 45 have since died and the fate of the remaining one is unknown; presumably dead.

Even if the National Institute of Health (NIH) projections are correct, there is a lot of evidence from around the world that they represent the launching pad for a devastating epidemic. For example in 1990, India officially had about 2,700 cases of

HIV. By 1993, the official figure had gone up to 500,000 while the estimates of actual cases now range from 2.7-3.5 million. In Bombay alone, where over one third of the prostitutes are infected, there are an estimated 1000 new infections every 24 hours. Proportionate to population, according to an AIDS researcher, Pakistan is at the same stage at which India was three years ago. This necessitates immediate action on a war footing.

In Pakistan, the practice of screening of blood products for HIV infection is practically absent. Only a few large medical centers in the country are screening blood products. It is essential to screen all blood products, the risks in Western nations bave been minimized by screening samples of donated blood. We are still awaiting for by-laws and mechanisms to implement blood screening on a large scale. If immediate action is not taken perhaps it will be too late for controlling this dreaded disease.

Scale of AIDS in Pakistan today

No one can be sure of the scale of AIDS in Pakistan today. Studies that have been conducted can only help in making estimated projections. According to Toor (1995) there have been a total of 850 HIV-positive cases, of those 46 showed signs of full-blown AIDS; of these 45 have died and one has disappeared. Of the 46 full-blown AIDS cases, 13 were reported from the Federal territories, 11 from Punjab, 10 from NWFP and Tribal Area, 8 from Sindh and 4 from Baluchistan. The NIH has compiled this information from various sources, using the `unlinked anonymous survey'. The known sources are the Agha Khan University in Karachi, a few blood screening centers and the studies conducted by the researchers at NIH. Of course there will always be difference in the actual cases and the ones reported. From the available data it can be concluded, however, that there is a steady rise in the occurrence of HIV-positive cases as well as full-blown AIDS cases in Pakistan. According to EPI, an international model used to determine the estimates in Pakistan, the threat and the magnitude of the AIDS epidemic in January 1994 was 733 HIV cases and 40 full-blown AIDS cases. In a matter of one year there has been increase of 123 HIV-positive cases and that too according to the official reports. Using the EPI with these figures, the estimated cases could be around 10,000-20,000 persons, and in actuality the number could easily be ten times greater than what is gradually estimated.

If the first case was detected in 1987, as is presently thought, then the aforementioned estimate appears to be relatively accurate. However, if there were cases before 1987 but were not diagnosed as HIV/AIDS cases, then, based on the statistical parameters the estimates could be much higher.

The prevalent mode of transmission of the HIV virus in Pakistan is the same as in Western countries, *i. e.* sexual intercourse - heterosexual, followed by bisexual and homosexual intercourse, blood transfusion using contaminated blood and vertical transmission from mother to infant. Recent studies conducted during November-December 1993 have compiled data from 30 centers around the country and reported on the disease from urban areas and targeted the incidence of HIV/AIDS in high-risk groups. Many of those tested were, however, from rural areas and have had moved to the cities in connection with their jobs. The high-risk groups which were included in

these studies were, sexually transmitted disease (STD) patients, prostitutes, truck drivers, intravenous drug users, trans-sexuals, prisoners and TB patients.

Cumulative records concerning the occurence of HIV/AIDS, as reported by various surveys from 1987-95, covering major urban areas has revealed the existence of infection. In Lahore, 2-3% of the prostitutes and 2-6% of the homosexuals; in Peshawar 1.6-2.0% among STD patients and 5.0% among those who received blood transfusions; in Rawalpindi 2% among truck drivers have tested positive for HIV. Of the 38 total cumulative AIDS cases, 12 were reported in 1993, 11 of whom were clinically diagnosed by a trained doctor in Islamabad. In January 1995, this figure rose to 46 full-blown AIDS cases and over a wider area throughout the country.

A recent report from the UAE claimed that of the 660,000 Pakistani nationals working in the UAE when screened for HIV, 353 were found to be positove. This signifies the possible role of these Pakistanis in the spread of the disease in their homeland after repatriatiion from abroad. A similar situation is also possible with Pakistanis working in other Middle Eastern countries as well as in the East and West.

With the revelation of the above information the Government of Pakistan has given AIDS prevention the top priority it deserves and has considered immediate action to keep the general population informed of the nature of the infection and its mode of transmission.

Experts have also identified prostitutes and their clients, drug users, immigrant workers, STD patients, truck drivers, homosexuals, prisoners and the youth as the groups most vulnerable to HIV infection.

Strategies for HIV/AIDS prevention and control in Pakistan

The government, after national and international consultations and recommendations by different experts, has provided strategies ober a broad spectrum to control and prevent the spresd of this epidemic. Some of the precautions are now universally approved and need no verification. These are being presented in the following pages:

Universal precautions

These are recommended by the Centers of Disease Control (July 1991).

a. All health care workes should adhere to universal precautions and comply with current guidelines for disinfection and sterilization of devices reused in invasive procedures; *b*. Exposure-prone medical and dental invasive procedures be identified; *c*. Health care workers should know their HIV status; *d*. Infected health care workers should not perform exposure-prone, invasive procedures unless permitted to do so by the experts; e. Patients should be told of the health care workers' HIV status before performance of any exposure-prone procedure; *f*. Always use gloves when treating bleeding patients, when drawing blood, and for procedures involving contact with mucous membranes or potentially infectious material; wear masks, protective eyewear, and gowns; *g*. Wash hands and skin immediately if contaminated after removing

gloves, and always before taking care of another patient; *h*. Prevent injuries caused by needles and scalpels. Needle-stick exposure is the main route of transmission of HIV to workers. Needles should never be recapped, removed from didposable syringes, or bent or broken by hand. All sharp items should be placed in a puncture-resistant container; *i*. Minimize mouth-to-mouth resuscitation; use a protective device; *j*. Workers with weeping lesions should refrain from direct patient care and handling patient-care equipment; *k*. Pregnant health workers must be familiar with and must strictly adhere to precautions. The infant is also at risk of infection if the mother is infected.

Prevention of transmission through contaminated blood

This is a priority for Pakistan as it is one of the few countries that has has not instituted a safe blood transfusion system. Therefor, a comprehensive safe blood transfusion system based on recruitment of screened donors, rational use of the blood and the screening of all blood - blood products - before transfusion/use should be provided. Attention is essential to ensure aseptic conditions in all health care facilities as well as application of universal precautions of `sterilization' of all skin piercing instruments. The habits of drug users should be closely monitored to assess the damage and appropriate strategies aimed at reducing the harm be developed.

Surveillance

The system of Sentinel Surveillance, alresdy established to monitor the epidemic, should be strengthened. Reporting of AIDS cases with an accent on counseling and care of opportunistic infections ought to be instituted.

Comprehensive training package

The need for training of health workers has been recognized in all areas. A package consisting of programs to provide knowledge on the under mentioned areas should be developed.

a. Modes of transmission of HIV and prevention methods; *b*. Clinical diagnosis; *c*. Clinical management, nursing care, counseling and home care; *d*. STD diagnosis and management; *e*. Provision of safe blood; *f*. Universal precautions.

Training programs should be carefully planned with a facility to monitor the results in terms of `action' to be performed by the health worker.

Safer sexual behavior

It is essential to disseminate HIV/AIDS/STD related information on the media to reach the general population as quickly as possible, requesting responsible behavior. Focussed and targeted attention should be given to special population groups such as prostitutes, frequent travellers, drug users, migrant workers and the youth.

STD management

A comprehensive STD case management program based on a syndromic approach should be introduced throughout the country using such specialized services, as MCH/FP, gynecology and dermato/venereology. Private practitioners and basic health care workers should also take part in such a program. It should also include the promotion of health care seeking behavior of the public.

Condom procurement and distribution

Distribution channels adequate for current needs and additional distribution channels needed to be established, which are specially targeted to high risk population groups.

Counseling and rehabilitation of HIV infected individuals

Facilities should be provided which will be accessible to the people in all major cities, and provincial centers for the treatment of opportunistic infections (TB, *Pneumocystis carinii* pneumonia, oral thrush, diarrhea). These will provide clinical management, nursing care, counseling and home care of AIDS patients.

Management

Task forces at the federal level may continue to assess the status of the epidemic and program implementation. The Federal committee on AIDS and its technical sub-committee may continue to provide advice and direction. The staff and the facilities of the National AIDS program at the center and provinces need to be strengthened. Provincial task forces may be established with the same terms of references as those of the Federal task force.

Monitoring and evaluation of program

All activities and programs as a whole may be monitored and evaluated through the use of indicators and targets. An appropriate survey may be used for the collection and tabulation of the information.

AIDS infections soar in Asia due to fear and denial

While the world's leaders continue to deny the magnitude of the threat of HIV, public health experts have adamantly warned the Asian countries that there is little hope of controlling the AIDS epidemic. Arguments have to be put forth that even modest spending could avert millions of new infections in regions where the virus is now rapidly spreading. According to WHO's global program on AIDS despite all the efforts by the health educators and researchers, more people were infected with the HIV virus in the past 12 months than any previous years. WHO suggests that it is denial which keeps society's leaders from taking the pandemic seriously and investing the much needed resources. Secondly, discrimination by governments against HIV-positive people, for example in mandatory testing, is futile and often harmful to true prevention.

Thirdly, the most vulnerable people are deprived of the information and power to protect themselves from infection.

Governments need to invest in prevention and research for new drugs and a vaccine, and fill the colossal gaps in health services that leave many of the world's people with AIDS without care. Political leaders must find the courage to provide leadership and all discriminatory laws must be abolished.

In rare cases, where AIDS is taken seriously, the effects are measurable. In Thailand, for example, reported cases of sexually transmitted diseases has dropped more than 75% over the past 7 years. Epidemiologists believe the fall is the result to intensive HIV education in groups at risk and the mass promotion of condoms. Thailand is one of the few Asian nations putting impressive national resources into AIDS prevention and it is getting excellent results. Other nations should also follow this pattern.

The Office of AIDS Research at the UN is of the opinion that persuading people to use condoms is not the whole answer. Vaccine production is also critical in the prevention of the spread of AIDS and vaccine production remains a high priority. The AIDS research office firmly believes that the only way to eradicate AIDS is by vaccines. The research includes the possibility of using live, attenuated forms of HIV to protect people from the virus. Critics fear the dangers of such a vaccine, but the benefits seem to outweigh any of the risks involved, especially in areas where HIV is spreading rapidly.

One key question that researchers are facing is why some people with HIV remain healthy for more than a decade, while others develop AIDS. A team of scientists at the National Institute of Allergy and Infectious Diseases USA, have offered some explanations. The team has already shown that the lymph nodes of HIV-positive people are packed with HIV particles even when none can be detected in their blood. The virus appewrs to destroy the lymph tissue then overwhelms the immune system. The team then studied a small number of people who were still healthy more than ten years after becoming infected. They showed no sign of the disease, nor did they show the characteristic decline in the number of T-cells that signals disease. Studies of their lymph nodes brought an even greater surprise; the tissue was `perfectly normal.' In some cases, this was explained by a defective virus causing the infection, but often the virus was capable of replicating quite normally.

The work of this team has overturned earlier ideas about the kind of immune response that protects against disease. For example, their studies showed that no particular group of T-helper cells is linked with staying healthy or progression to disease. Those who stayed healthy for a long time had high levels of antibodes to the virus, once thought to indicate a failing immune system.

Conclusions

The real magnitude of the AIDS threat in Pakistan is still a dilemma. The official figure is 850 HIV-positive cases. Actually this figure could easily exceed 1000 and this

too may be multiplied 100 times over because each of the infected individuals can come in contact with any number of people within various parts of the country. Because there is no absolute treatment and cure for AIDS, a HIV carrier can transmit the virus to another person and that victim onto another for the rest of his life.

The government launched an AIDS awareness program in March 1994 but despite such efforts, the plans to curb the spread of the disease have fallen short of what they should have achieved in the last five or six years.

Another reason for the rapid spread of AIDS is the ever increasing population of Pakistan. A lot of people come to Pakistan from abroad and there is an increase in illegal immigration from countries where AIDS is a full-blown menace. These immigrants belong to communities which are not connected with any established cultural society and where the social norms about interaction between men and women are not as strict as in more settled societies.

To prevent such an uncontrolled and devastating spread of the disease, the government should create greater awareness using the electronic as well as the print media. The present government in January 1994, began to introduce a much stronger and more intense campaign to promote awareness among the masses, not only through the television and radio, but also via the print media by distributing brochures and handouts. This information should be made availabe to hospitals, colleges, dispensaries, medical shops and research institutes. In addition seminars, talks, symposia and review papers should be held and published at regular intervals so as to update all the information regarding the spread, and prevention of HIV/AIDS.

Furthermore, the people should be told the specific modes of transmission of the AIDS virus and be made aware of the fact that an AIDS patient should not be shunned but encouraged by the society to live in and share his/her feelings regarding the disease and educate the youth on the preventive measures that should be exercised. In addition the various high-risk groups should be targeted with different approaches. The campaign has to be shaped in such a way that it reaches out to the general public. For example the radio is the most far reaching electronic media in the country. Hence, Radio Pakistan should devise an AIDS theme, be it in the form of a song, poem, or documentary and have a few famous celebrities present it on the air so as to attract even more listeners.

The largest hurdle or resistance that such a comprehensive campaign can encounter is that from the nation's clergy. Well if there is a reaction against the candidness of the campaign by the religious leaders, then they should be made to understand that such a campaign is absolutely necessary to combat this deadly disease and any deliberate misinformation about HIV/AIDS will result in ignorance about the dangerous consequences of not only the disease, but also the fact that if it is not dealt with immediately the whole nation could be at great risk. We, as a nation need to take the clergy into confidence and need to work together to stop the spread of AIDS, by promoting the use of condoms, screening all blood products and, at the same time fight against the population explosion.

REFERENCES

BARON, S., 1991. *Medical Microbiology*, 3rd edition. Section II Virology, Human Retroviruses, eds. A.S. Fauci and Z.F. Rosenberg. Churchil Livingston Inc. New York, pp. 810-816.

JOKLIK, W.K., WILLET, H.P., AMOS, D.B. AND WILFERT, C.M., 1992. *Zinsser Microbiology*, Appleton and Lange-A publishig division of Prentice Hall, Connecticut, USA. pp.1051-1094.

KAYANI, N., SHEIKH, A., KHAN, A., MITHANI, C., AND KHURSHID, M. 1994. A view of HIV-1 infection in Karachi. *J. Pak. Med. Assoc.*, **44**: 8-11.

PELCZAR, M.J. CHAN, E.C.S., KREIG, N.R., 1993. Microbiology - *Concepts and Applications*. Internatioal Edition. McGraw-Hill Inc., pp. 603-631.

REHMAT, K., 1992. *Aids on the March*, Knowledge International, Rubina Khalid Publication, Islamabad. Vol. 1, pp. 10-14.

TOOR, Z.I., 1995. *National AIDS Program*, National Institute of Health, Islamabad (persoal communicatio).

ZAFAR, A., 1990 AIDS `*Pakistan - the big cover-up*' Herald, March 1990. Vol. 21, Herald Publications Ltd. Karachi., pp. 84-97.

ZAIDI, H., 1994. *AIDS - the horror strikes home*, Herald Vol. 25, Herald Publications Ltd, Karachi, pp. 25-40.

Received: January 12, 1995