SHHD/CAMO(85)8

SCOTTISH HOME AND HEALTH DEPARTMENT

St Andrew's House Edinburgh EH1 3DE

Telephone 031-556 8501 ext

To: Chief Administrative Medical Officers

Copy to: Community Medicine Specialists
(Communicable Diseases and Environmental Health)

17 May 1985

Dear Doctor

ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS)

You have already received letters about Public Health Legislation with regard to AIDS (SHHD/CAMO(85)4 dated 22 March 1985 refers) and the Health Education leaflet "Some Facts about AIDS" which is available from the Scottish Health Education Group (SHHD/CAMO(85)5 dated 1 April). In the first of these it was indicated that we would shortly be writing to all doctors on the subject of AIDS and I now enclose a copy of the letter which I would ask you to send to all doctors within your Health Board's area. Enclosed with the letter is:

(1) a paper entitled "AIDS - General Information for Doctors" which has been prepared with the advice of the Health Departments' Expert Advisory Group. The paper includes sections on groups at risk (p 3), clinical presentation and diagnosis (p 4) and guidance measures to control the spread of the infection (p 9) as well as other information; and

(2) a paper prepared by the PHLS Communicable Disease Surveillance Centre which gives a detailed account of the epidemiology of the condition.

Bulk supplies of the letter and its enclosures will be sent to you for distribution in the next few days.

Any queries relating to this letter should be directed to Dr R G Covell, Room 2, St Andrews House, Edinburgh (031-556 8501 ext 2532).

Yours sincerely

GRAHAM A SCOTT
Deputy Chief Medical Officer

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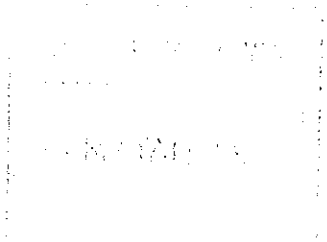

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Dear Doctor

ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS)

The enclosed paper "AIDS - General Information for Doctors" has been prepared with the assistance of the Health Departments' Expert Advisory Group on AIDS. The paper includes sections on groups at risk (p 3), clinical presentation and diagnosis (p 4) and guidance measures to control the spread of the infection (p 9) as well as other information. Also enclosed is a paper prepared by the PHLS Communicable Disease Surveillance Centre in London which gives a detailed account of the epidemiology of the condition.

While there have been only 4 cases of AIDS registered to date in Scotland, there have been 159 cases in the United Kingdom and it is likely that AIDS and the other manifestations of the causal virus will become more frequent and widespread in the future. There is considerable ignorance and anxiety in the public in general and in particular among those at special risk which has not been helped by some of the reporting in the media. Not a great deal has yet appeared in text books about AIDS and therefore I hope that you will find this information useful.

You will also wish to know that a leaflet "Some Facts about AIDS", prepared for the general public by the Health Education Council and reprinted by the Scottish Health Education Group, is available from the Health Education Officer of your Health Board.

New regulations (Public Health (Infectious Diseases) Regulations 1985) have been introduced in England and Wales to cover the rare and very exceptional circumstances when a patient with AIDS might have, in the interest of public health, to be compulsorily detained in hospital. In Scotland this eventuality is covered by existing legislation so that new regulations are not being introduced here.

Any queries relating to this letter should be directed to Dr R G Covell, Room 2, St Andrew's House, Edinburgh (031-556 8501 ext 2532).

Yours sincerely

GRAHAM A SCOTT
Deputy Chief Medical Officer

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ACQUIRED IMMUNE DEFICIENCY SYNDROME

AIDS

GENERAL INFORMATION FOR DOCTORS

MAY 1985

CONTENTS

DEFINITION OF AIDS AND REPORTING OF CASES

The first case of AIDS in the UK was reported in 1981. In 1982 a surveillance scheme was set up by the PHLS Communicable Disease Surveillance Centre (CDSC) at Colindale and the Communicable Diseases (Scotland) Unit, Glasgow, with the object of following the course of the outbreak. The case definition adopted is that in use at the Centers for Disease Control (CDC), Atlanta, Ga, USA, and is as follows:

> "(i) A reliably diagnosed disease that is at least moderately indicative of an underlying cellular immune deficiency. For example, Kaposi's sarcoma in a patient aged less than 60 years, or opportunistic infection.
>
> (ii) No known underlying cause of the cellular immune deficiency nor any other cause of reduced resistance reported to be associated with the disease".

This definition has also been accepted by many other countries and by the World Health Organisation (WHO) Collaborating Centre for AIDS.

By the end of February 1985, 132 cases of AIDS (126 males, 6 females), of whom 58 had died, had been reported within the United Kingdom to the Communicable Disease Surveillance Centre. The majority of the cases (97 or 74 per cent) have been reported from London. The remainder have been scattered throughout the country, almost all in the larger towns. (In the United States by the end of 1984 there had been 7,691 cases and 3,661 deaths.)

Doctors who have patients with AIDS under their care are invited to assist in the maintenance of a complete register of cases by reporting them in strict confidence to the Director, Communicable Diseases (Scotland) Unit, Ruchill Hospital, Glasgow G20 9NB (tel 041-946 7120). The details required should be confirmed with CD(S)U.

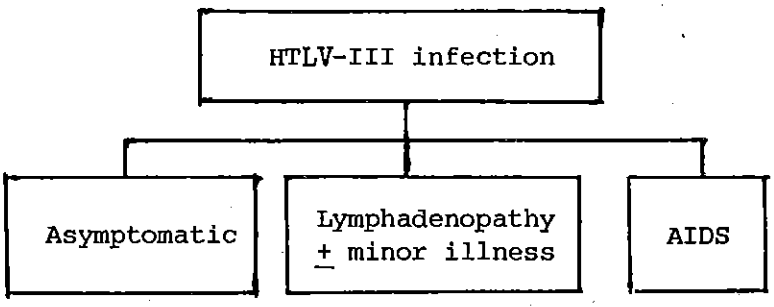
THE CAUSE

It now seems almost certain that the cause of AIDS is a virus first reported from France and termed Lymphadenopathy Associated Virus (LAV). A virus which is almost certainly identical has been separately isolated from AIDS patients in the USA, where it has been termed Human T-cell Lymphotropic Virus type III (HTLV-III). This nomenclature is used hereafter.

HTLV-III DISEASE

HTLV-III has been isolated from a range of persons who do not meet the full CDC definition of AIDS. As in many virus diseases infection with HTLV-III has a wide spectrum of clinical expressions: from those individuals who are asymptomatic, to the minority who are severely affected and develop AIDS (Fig 1). It is important to point out that the majority of infected individuals are asymptomatic.

FIGURE 1.



In a few patients a self limiting glandular-fever-like illness characterised by fever, macular rash, and lymphadenopathy within a few days of infection has been reported but it seems likely that in the majority of cases infection is unaccompanied by symptoms or signs. The incubation period between infection and development of AIDS is prolonged and has been found to vary from between 15 and 58 months.

RISK FACTORS

Probably the most important factor in making a diagnosis of AIDS is to think of it. In order to assist diagnosis the distribution of cases within the risk groups identified in the USA and the UK is given in Table 1. By far the largest proportion has occurred in homosexual men. Intravenous drug abusers sharing infected equipment including syringes and needles have been an important group in the USA but so far only one such case has occurred in the UK (in March 1985). Others are likely to follow, however.

A diagnosis of AIDS should also be kept in mind in relevant circumstances in persons (regardless of race or sex) who have lived recently in Central Africa and in the female partners of bisexual men. The children of women with HTLV-III infection are also at risk.

The risk of infection as a result of blood transfusion is extremely low. Infection with HTLV-III has occurred as a result of treatment with Factor VIII and Factor IX. Heat treated Factor VIII is now available and in use and is likely to eliminate the risk of transmission. Careful epidemiological and laboratory studies have shown that hepatitis B vaccine does not transmit HTLV III infection. As far as intramuscular immunoglobulins are concerned the method of preparation in the UK is regarded as a sufficient safeguard against transmission.

TABLE 1

AIDS CASES (as at 28 February 1985)

Patient Group		Total Cases in USA		Total Cases in UK	
		Number	%	Number	%
(i)	Homosexual/bisexual	6293	72	117	89
(ii)	Intravenous drug abusers	1478	17	0	0
(iii)	Haemophiliacs	62	<1	3	2
(iv)	Blood transfusion recipients	104	1	0	0
(v)	Female sexual partners of men at risk	68	<1	1	<1
(vi)	Children of affected mothers	104	1	0	0
(vii)	Caribbean connection (Principally Haiti)	280	3	1	<1
(viii)	Central African connection	0	0	6	5
(ix)	Insufficient data or unknown	308	4	4	3
	Totals	8697		132	

CLINICAL PRESENTATION OF AIDS

a. NON-SPECIFIC SYMPTOMS

Patients with AIDS may present with vague symptoms including lethargy, weight loss and night sweats. Fever, joint pains, rash, diarrhoea and enlarged lymph glands may also occur. The list of diseases with which a patient with AIDS may present includes many opportunistic infections and a few rare malignancies. However the commonest presentations are Pneumocystis carinii pneumonia (60 per cent) and Kaposi's sarcoma (25 per cent). IF CLINICAL AIDS IS SUSPECTED URGENT REFERRAL TO HOSPITAL IS INDICATED. PATIENTS WITH AIDS ARE SEVERELY IMMUNOSUPPRESSED. EARLY REFERRAL OF PATIENTS WITH AN OPPORTUNISTIC INFECTION MAY RESULT IN APPROPRIATE TREATMENT FOR THE INFECTION WHICH IS OFTEN SUCCESSFUL.

b. THE LUNGS - PNEUMOCYSTIS CARINII PNEUMONIA (PCP)

Typically patients with PCP present with a persistent non-productive cough, shortness of breath on exercise and fever of several weeks duration. The patient is often tachypnoeic at rest without other findings on physical examination. On presentation a chest X-ray may show interstitial lung shadowing or it may be clear. Blood gas analysis and other lung function tests, including estimating the carbon monoxide transfer factor, may be helpful. There is usually a marked hypoxia even if the chest X-ray is clear. In such a case if the patient is in a risk group the diagnosis of pneumonia (PCP) should be considered. Although the disease may have had a slow onset, deterioration is normally rapid after presentation unless treatment is given. Such patients require urgent admission to hospital. As soon as possible after admission transbronchial lung biopsy should be considered to establish the diagnosis. Although PCP is the most likely diagnosis other infections may produce such a presentation alone or in concert with Pneumocystis carinii. These include cytomegalovirus, mycobacterial and cryptococcal infection which may require different or additional treatment.

c. THE SKIN - KAPOSI'S SARCOMA

Kaposi's sarcoma occurring in patients with AIDS may look insignificant on initial presentation to the clinician. At this point it may consist only of a localised red or purple, flat or raised lesion anywhere on the skin (or hard palate) and may mimic a bruise, an angioma, or a pyogenic granuloma. In an at-risk individual the persistence of even a trivial skin lesion should raise the desirability of referral to a dermatologist, a genito - urinary medicine/ sexually transmitted diseases clinic or a physician interested in AIDS. General practitioners are advised not to attempt a skin biopsy where Kaposi's sarcoma in an AIDS patient is suspected. Another dermatological presentation of AIDS is severe mucocutaneous herpes simplex usually taking the form of locally invasive and progressive ulceration (perianal or perioral). A number of other non-specific skin complaints are common among AIDS patients including fungal infections, folliculitis and eczema.

d. THE CENTRAL NERVOUS SYSTEM

Central nervous system involvement is relatively common. Presenting symptoms include lethargy, depression, personality change, impairment of intellectual functions such as short-term memory, confusion, fits, headaches, and/or ataxia, Focal neurological signs such as hemiplegia or dysphasia may also occur. Toxoplasma, or less often fungal infections, cerebral abscesses, herpes simplex encephalitis and cerebral lymphoma are important treatable causes of space-occupying lesions, best shown initially on CT scanning. Infection with papovavirus may lead to progressive multifocal leucoencephalopathy, which has characteristic CT scan

appearances. Cryptococcal or tuberculous infection may present as subacute meningitis with minimal symptoms and signs. Where these have been excluded a common background to neurological abnormalities is diffuse cerebral atrophy; this progressive disorder may be due to an opportunist infection such as cytomegalovirus, but recent evidence points to direct infection of brain cells with HTLV-III as the major cause.

Retinal lesions are common and include non-specific cotton wool spots or larger exudates associated with pneumocystis or toxoplasma infection. Haemorrhages, choroidoretinitis and vascular occlusions may be part of an aggressive cytomegalovirus retinitis, which may rapidly lead to blindness. Examination of the fundi is a valuable diagnostic aid.

e. THE ALIMENTARY TRACT

AIDS may present with oral and oesophageal candidiasis. Intractable diarrhoea may also occur. Investigation of the diarrhoea does not always reveal a cause but diagnoses to consider include cytomegalovirus enterocolitis or other involvement of the bowel with Kaposi's sarcoma, cryptosporidiosis or mycobacteria.

Although in healthy individuals, cryptosporidiosis is normally a self limiting condition, it poses particular problems in the presence of immunosuppression such as is seen in AIDS patients. Cryptosporidium may not be seen on a direct smear examination of a stool specimen unless the preparation is acid-fast stained. Concentration of the stool specimen may be necessary.

f. PYREXIA OF UNKNOWN ORIGIN (PUO)

AIDS may present as a pyrexia of unknown origin. The pathogens most frequently responsible are cytomegalovirus, mycobacterium tuberculosis or atypical mycobacteria. In immunocompromised patients the mycobacterium frequently does not excite a granulomatous reaction so diagnosis may be difficult. Tuberculosis may be miliary and it may be necessary to stain tissue biopsies including marrow for acid fast bacilli. Pneumocystis carinii pneumonia may also initially present as a PUO.

g. LYMPHOMAS AND OTHER TUMOURS

It is clear that although falling largely outside the formal surveillance definition of AIDS; B-cell lymphomas, often with extensive extranodal disease, are part of the spectrum of complications of HTLV-III infection. This must be borne in mind when patients present with progressive enlargement of lymph nodes unlike the more usual minor lymphadenopathy referred to in section (h). Some patients have developed Hodgkin's disease in association with HTLV-III infection. Other tumours, such as squamous carcinoma of the anus and cloacogenic carcinoma of the anorectum have been described in homosexual men; their relationship to HTLV-III infection is however uncertain.

h. LYMPHADENOPATHY AND MINOR ILLNESS ASSOCIATED WITH HTLV-III INFECTION

HTLV-III infection is already widespread in certain groups at risk (e.g. in homosexuals with multiple sexual partners and in haemophiliacs). Estimates vary as to what percentage of infected individuals will ultimately develop AIDS, but it may be of the order of 10 per cent. Many more patients will however develop less serious illness with which they may present to their doctor. The commonest symptoms are non-specific and are described on page 4 . They may mimic infectious momonucleosis. The commonest signs are lymphadenopathy bilaterally in three or more sites which may fluctuate and persist for months, and hepatosplenomegaly. Rashes (dermatitis, folluculitis, tinea, shingles and impetigo) occur commonly in this group as does oral candida(thrush). The majority of patients with lymphadenopathy alone seem generally to have a good prognosis and have rarely progressed to fully developed AIDS in the succeeding 3-4 years. Patients in whom lymphadenopathy is seen in association with major weight loss, unexplained diarrhoea, fever, oral candidiasis and lymphopenia should be followed more closely as they are more likely to progress to AIDS. Other patients may have these symptoms without lymphadenopathy as part of a prodromal disorder. Unexplained thrombocytopenic purpura may be associated with HTLV-III infection.

Some patients with prodromal disorders may show raised ESR, anaemia, lymphopenia, or thrombocytopenia but other patients with lymphadenopathy may have a normal haematological picture. A polyclonal rise in immunoglobulin is commonly associated with these minor variants. Blood tests are not necessary prior to referral. If blood is taken from a person suspected of having AIDS or an HTLV-III related condition then the procedures outlined in the section on Laboratory Investigations (p8) should be followed.

i. Summary

Remember the possibility of AIDS and HTLV-III infection when seeing patients in high risk groups. Examine in particular for enlarged lymph nodes and look at the skin and oral cavity. If symptoms or signs suggest low grade HTLV-III disease refer early. If AIDS itself is suspected, urgent referral is indicated to an infectious diseases physician or to a genito urinary medicine (GUM) or sexually transmitted diseases clinic. Referral should not be delayed whilst waiting for laboratory results.

LABORATORY INVESTIGATIONS

If blood is taken from a person suspected of having AIDS or an HTLV-III related condition then the following procedures outlined in the ACDP Guidelines issued by SHHD (SHHD/DS(85)10) should be observed.

a. When blood or other specimens are to be taken, gloves and a disposable plastic apron and/or gown must be worn and discarded safely after use. Eye protection is recommended.

b. Only the minimum essential quantity of blood should be drawn and then only by designated staff who are trained and experienced. Those who withdraw blood or other body fluids must ensure that the outside of any specimen container is free from contamination.

c. Disposable units must be used for blood collection. Needles must be removed from syringes before the blood is discharged into the specimen container and immediately discarded into a puncture-proof disposable bin used solely for that purpose and designed for incineration. Only needle-locking syringes or similar units should be used to aspirate fluid from patients. Accidental puncture wounds in staff must be treated immediately by encouraging bleeding and liberal washing with soap and water. Any such accident or contamination of broken skin or mucous membranes must be promptly reported to and recorded by the person with overall responsibility for the work.

d. Specimens must not be sent to the laboratory without a standing agreement between the clinician and senior laboratory staff. They must be in robust screw-capped and leak-proof containers (evacuated or not) bearing a hazard warning label. Securely capped specimen containers should be sent in separate sealed plastic bags, kept upright if possible and transported to the laboratory in a sound secondary container which can be disinfected. The accompanying request forms must be kept separate from the specimen to avoid contamination and also clearly indicate the hazard. Pins, staples or metal clips must not be used to seal the bags and for safety, the carrying handles of the secondary container should not be attached to the lid.

SPECIAL INVESTIGATIONS

i. The HTLV-III antibody test should become more widely available in 1985. It indicates, if the result is positive and confirmed, that the patient has definitely been infected with HTLV-III. As already mentioned however, this does not imply that the patient concerned will develop AIDS, but on the basis of present knowledge they should be regarded as being capable of transmitting the disease. A negative test is a good indicator of the absence of infection, but on rare occasions a patient with a negative test may be in a viraemic phase prior to antibody production. Patients who have previously been positive may become sero-negative in the final stages of clinical AIDS. The Department will issue guidance about the HTLV-III antibody test in due course.

ii. The test for lymphocyte subsets is only available in certain specialised centres. HTLV-III is "lymphotropic" for a special subset of lymphocytes - the T helper cells. That is to say that the virus replicates within these cells and brings about damage to the immune system by destroying them. Too much reliance should not be placed on the level of these cells in the blood as a low helper cell count may improve spontaneously in an HTLV-III positive patient and a patient may even present with AIDS with a normal helper cell count. The deficit in such cases may be functional rather than numerical.

GUIDANCE ON MEASURES TO CONTROL SPREAD

This guidance is not only for patients with AIDS and their families and friends but also for persons with positive HTLV-III antibody tests and members of the risk groups shown in Table 1. HTLV-III appears to be transmitted principally by sexual intercourse - predominantly between male homosexuals - or by transfusion or inoculation of blood or blood products. There is no evidence to date that social contact with others presents a risk of transmission of infection. Furthermore, there is no evidence that the infection is transmissible by airborne droplets resulting from coughing or sneezing, nor by sharing washing, eating and drinking utensils, other articles commonly in general use or sharing of toilet facilities. Infection has not been detected in family contacts apart from sexual partners or children born to infected mothers.

There is a risk of infecting others by sexual intercourse. Sexual partners should be restricted where possible to established relationships. In the present state of knowledge both homosexual and heterosexual anal intercourse should be avoided.

Although spread by saliva has not been documented, intimate exposure of others by oral-genital contact or by intimate kissing should be avoided. Mutual masturbation appears to be safe. The efficacy of condoms in preventing infection with the AIDS virus is not proven, but the consistent use of protective sheaths will probably reduce transmission and is therefore recommended.

Infection may also be transmitted by the sharing of needles and syringes. Devices which have punctured the skin, such as hypodermic needles, ear piercing equipment, tattooing needles and acupuncture needles must be safely discarded unless proper facilities (for instance in a hospital) for steam sterilisation by autoclave are available. Needles and equipment coming into contact with blood should whenever possible be disposable. Razors, toothbrushes or other implements which could become contaminated with blood must not be shared. After accidents resulting in bleeding, contaminated surfaces should be cleaned liberally with household bleach, freshly diluted one part bleach to 10 parts water.

PERSONS INFECTED BY HTLV-III AND IN AT RISK GROUPS SHOULD NOT DONATE BLOOD, PLASMA, OTHER BODY TISSUES (eg BONE MARROW), BODY ORGANS, OR SPERM. THEY SHOULD NOT SIGN OR CARRY ORGAN DONOR CARDS.

Individuals with a confirmed sero-positive test should inform their medical and dental advisers that they are antibody positive prior to any blood tests being taken or surgical procedures including dental work being undertaken so that appropriate precautions can be taken.

COUNSELLING

Further consideration will require to be given to the appropriate means of providing, within the National Health Service, counselling and support of AIDS sufferers, their contacts and those found to be HTLV-III antibody positive. Support is also available from some community based groups, such as Scottish AIDS Monitor, 23 Dublin Street, Edinburgh, 031-557 4049, the Terrence Higgins Trust Ltd BM AIDS, 34 South Moulton Street, London WC1N 3XX, and the Haemophilia Society, PO Box 9, 16 Trinity Street, London SE1 1DE. The Chairman of the Scottish Group of the Haemophilia Society is Mr R A Cowe, 106 Houstoun Gardens, Uphall, Broxburn, West Lothian.

SAFETY GUIDELINES FOR HEALTH CARE WORKERS have been issued by SHHD (entitled "AIDS - Interim Guidelines by ACDP" (DS(85)10)). These relate to the care of AIDS and persistent generalised lymphadenopathy patients in hospital, and also deal with the handling of blood specimens and secretions.

THE ACQUIRED IMMUNE DEFICIENCY SYNDROME

Prepared by Communicable Disease Surveillance Centre

In the summer of 1981, an outbreak of 5 cases of Pneumocystis carinii pneumonia (PCP) in previously healthy homosexual men was reported in Los Angeles in the United States of America[1], and at about the same time 26 cases of Kaposi's sarcoma (KS), 4 with confirmed PCP, were reported from New York and California[2], also in previously healthy homosexual men. Between June 1 and November 10, the Centers for Disease Control (CDC), Atlanta, detected 159 cases of KS, PCP and other serious opportunistic infections by active surveillance and by monitoring requests for pentamidine, the drug used to treat PCP and distributed solely by CDC. Three quarters of the cases were from New York city, San Francisco or Los Angeles and 92 per cent of them were homosexual or bisexual males[3]. A 'new' disease had appeared and for epidemiological purposes a case of acquired immune deficiency syndrome (AIDS) was defined by CDC as a person

1. with a reliably diagnosed disease that is at least moderately indicative of an underlying cellular immune deficiency; for example, Kaposi's sarcoma in a patient aged less than 60 years, or opportunistic infection;
2. who has no known underlying cause of cellular immune deficiency nor any other cause of reduced resistance reported to be associated with the disease.

This definition was subsequently accepted by most countries of the world and by the World Health Organisation (WHO) Collaborating Centre for AIDS.

By September 1983, 2,259 cases had been reported with 917 deaths and the disease had spread to most States of the USA, although nearly all the cases were in large cities. The cases were classified into groups at greatest risk of acquiring the disease; 71 per cent were homosexual or bisexual men, 17 per cent (half of them women) were intravenous drug abusers, 1 per cent were haemophiliacs, 1 per cent had had blood transfusions, 1 per cent were sexual partners of persons with AIDS or at increased risk of AIDS, and 6 per cent were in none of these risks groups[4]. Almost half the patients were aged 30-39 years but the drug abuse patients tended to be younger and the transfusion associated patients older. At the end of 1984 these proportions remained similar, but the numbers had increased to 7,691 cases with 3,661 deaths. Cases had been reported in the children of AIDS patients and of persons at increased risk of AIDS, and the number of cases which did not fall into any of the 'risk' groups had increased to over 250.

Soon after the epidemic of AIDS was detected, increasing numbers of patients in the same risk groups were seen with malaise, weight loss, sweats and persistent lymphadenopathy, some of whom subsequently developed AIDS. The syndrome was termed 'pre-AIDS' or 'extended lymphadenopathy syndrome (ELS), but is now usually known as 'persistent generalised lymphadenopathy (PGL). It remains uncertain whether this represents a prodromal phase of AIDS or is a different syndrome caused by the same agent.

AIDS in the United Kingdom

The first case of AIDS in the UK was reported in December 1981[5] and in 1982 a surveillance scheme was set up, using the CDC epidemiological case definition, based on reports by genito-urinary physicians and other clinicians, laboratory reports of opportunistic infections and death certification of AIDS and Kaposi's sarcoma[6]. By the end of 1984, 108 cases and 46 deaths had been reported. The overall fatality rate was similar to that in the USA, totalling between 40 and 50 per cent between 1979-84 but over 70 per cent in cases reported in 1982 or earlier. In the UK, 93 (86 per cent) of cases were in homosexuals, 3 (3 per cent) in haemophiliacs, 1 (1 per cent) in a heterosexual contact and 11 (10 per cent) not in any of the risk groups; of these 11, 6 were either African nationals or associated with Africa. The geographical distribution of the cases resembled the urban clustering in the USA, and reflected the distribution of the homosexual cases, most of which were reported from London; altogether 81 (75 per cent) of cases were in London, 21 (19 per cent) in other parts of Southern England and South Wales, 3 (3 per cent) in Northern England and 3 (3 per cent) in Scotland.

Three main differences were observed between the USA and UK data. First, Kaposi's sarcoma was proportionately more common in the UK (39 per cent of cases), than in the USA (28 per cent of cases). Second, there was only one intravenous drug abuser, who was also homosexual, in the UK, compared with 17 per cent in the USA. Third, the proportion of cases which did not belong to any defined risk group, but which were in persons associated with Africa or the Caribbean, was higher in the UK (6 per cent, all associated with Africa), compared with the USA (3 per cent, all Haitians). This difference was even more striking in the European data because many of the reported cases in France and Belgium were in Africans.

Human T-cell lymphotropic virus type 3

The epidemiology of AIDS resembled that of hepatitis B virus infections and strongly suggested an infectious cause. The search for the possible causative agent resulted in the isolation of lymphotropic retroviruses from patients with AIDS and at risk for AIDS in France and the USA in 1983. The French isolates were named 'lymphadenopathy associated virus' (LAV) and those in the USA human T-cell leukaemia (later changed to lymphotropic) virus type 3 (HTLV3)[7]. Both viruses are now considered to be very similar and to be the primary causative agent(s) of AIDS, although the classification as HTLV3 has not been universally accepted.

HTLV3 has been isolated from blood, semen and saliva of patients with AIDS and appears to

persist in blood for long periods in the presence of antibody; seronegative virus-positive healthy persons have been described in the early stage of the infection, although this is only likely to be of short duration[8]. Thus, there is a wide spectrum of clinical states associated with HTLV3 infection ranging from healthy antibody-negative persons to patients with fully developed AIDS. It seems probable that only a very few of the infected persons become ill, and that this proportion is likely to vary with other factors such as immunological stress from recurrent infections, use of recreational drugs, exposure to allogeneic semen and genetic make-up, for example HLA type[9]. The incubation period of AIDS has been determined in studies conducted on recipients of infected whole blood in the USA; symptoms developed between 15 and 57 months after transfusion (median 27.5 months)[10].

Tests for antibodies to HTLV3 have been developed but these are not tests for AIDS and are difficult to interpret. It is, however, reasonable to assume that blood and blood products from HTLV3 antibody-positive persons are infectious, although these persons may not necessarily be infectious by the sexual route[11]. Furthermore antibody-negative persons in the high risk groups may be infectious[8]. In a study in the UK between 1983 and 1984, 30(97 per cent) of 31 AIDS patients were seropositive, as were 110 (89 per cent) of 124 PGL patients, 53 (17 per cent) of 308 homosexuals without symptoms attending genito-urinary medicine clinics, 53 (34 per cent) of 184 haemophiliacs receiving pooled clotting factors, 4 (1.5 per cent) of 269 intravenous drug abusers and none of 1042 unselected blood donors[11]. These serological data mainly reflect the distribution of AIDS in the UK, but the small number of positive tests from intravenous drug abusers gives rise to particular concern because of the rise in drug abuse and in acute hepatitis B infection in drug abusers since 1983. Spread of HTLV3 and AIDS in this group might be expected to take place.

The spread of AIDS and HTLV3

The spread of HTLV3 appears to be primarily by semen and by blood, usually during homosexual intercourse or by the therapeutic use of blood or blood products.

Sexual transmission: surveillance of AIDS in the USA and UK has shown that most reported cases have been in homosexual or bisexual men, about 71 per cent in the USA and about 86 per cent in the UK, and that these proportions have changed little as the epidemic has progressed. One of the most striking epidemiological features of the disease is its failure to spread widely in the community; only limited spread to female sexual contacts of cases and of persons in high risk groups has been reported and in the USA the proportion of women affected has remained constant at about 6 per cent of the total. This is quite unlike the picture of a heterosexually spread sexually transmitted disease and is perhaps because female to male spread is exceptional. Sero-epidemiological studies of homosexual males accord with this observation. The main risk factors for HTLV3 infection in these men were receptive anal intercourse and multiple sexual partners. By contrast, insertive anal intercourse was not a risk factor[9]. It is probable that transmission of infection is by blood or semen during sexual contact and occurs more readily in homosexual than heterosexual contact because of trauma to the rectal mucosa.

Transmission by blood and blood products: transmission of AIDS by blood or blood products to haemophiliacs and other patients has been reported in 155 cases (2 per cent of the total) in the USA but only to 3 haemophiliacs in the UK, all of whom received USA factor VIII; this represents an incidence of about 1 per 1000 haemophiliacs in the UK. There is no evidence of transmission by hepatitis B vaccine or other blood products, indeed, epidemiological studies have failed to show any association between hepatitis B vaccine and AIDS, and laboratory studies have shown that the method of production of vaccine inactivates human retroviruses[12].

Accidental transmission: transmission of AIDS to health care staff by accidental innoculation of blood or other infected material has not been substantiated. No cases have been reported in the USA[13]. A Danish female surgeon who died of possible AIDS in 1977, after working in hospitals in Northern Zaire since 1972[14], and AIDS in a hospital employee who worked as a housekeeper in a hospital in the USA and who pricked his finger when disposing of waste[15], were reported but in neither case was there any known association with infected material.

Transmission of HTLV3 to a nurse was, however, reported in the UK following a severe needle-stick injury which probably involved the injection of a small amount of blood from a patient with AIDS[15]. Nevertheless, the risk of transmission to health care staff appears to be low. In a study of 85 staff caring for AIDS patients in a USA hospital, 33 of whom had sustained needle-stick injuries, none sero-converted to HTLV3 over a three year period[17]; in another report, from the UK, 21 staff of a haemophilia reference centre caring for HTLV3 antibody-positive patients were seronegative[18].

Transmission from parents to children: AIDS has been reported in 64 children, mostly infants, in the USA whose parents had AIDS or were in groups at increased risk for AIDS; many of the mothers were intravenous drug abusers or sexual contacts of bisexual men. The spread may be transplacental, from cervical secretions or by blood during birth or the early neonatal period[19]. In one case in the USA, the son of a haemophiliac, it appeared that the father had acquired HTLV3 infection from pooled factor VIII. He had transmitted the infection to his wife and the son had subsequently become infected; it was suggested that this took place transplacentally, by breast milk or by maternal or paternal close contact during the early neonatal period[20].

Other routes of transmission: transmission of HTLV3 by other means has not been described. Kissing was suggested in one report[8], but spread by blood in the household was not excluded in this case, and the suggestion remains unsubstantiated. There is no evidence of transmission by casual personal contact, by fomites or by food and such spread seems very unlikely because it would probably require

the application of grossly contaminated material to an open wound, mucous membrane or conjunctiva of a susceptible person. Epidemiological evidence suggests that the possibility of airborne transmission from person to person is remote, although aerosol transmission could theoretically take place in laboratories during the manipulation of high concentrations of virus.

The origin of AIDS and HTLV3 infection

Ninety-three (86 per cent) of reported cases in the UK were in homosexual or bisexual males. Of these 93 cases, 68 (73 per cent) had had sexual contact with USA nationals or Caribbean nationals or had travelled to these places, suggesting that the infection may have been imported into the UK from America. The 3 reported cases in haemophiliacs had all been treated with factor VIII concentrate made from USA donor material; furthermore a comparative study of Scottish and Danish haemophiliacs showed an association between the use of USA factor VIII concentrate and seropositivity to HTLV3[21].

These links with the USA were not present in the cases associated with Africa in the UK and in Africans in continental Europe, who did not fall into any of the risk groups, although these appear to be due to infection with the same agent[22]. The direct association with Africa of these cases supports the hypothesis that the infection originated in sub-Saharan African and spread to Europe in two ways; first via the homosexual population in the USA and blood and blood products derived from that population (the infection may have spread first to Haiti and then to the USA), and second, directly by Africans coming to Europe particularly from Central Africa[23]. Widespread outbreaks of AIDS have, indeed, been reported in Central Africa, but they have features which differ from the North American and European experience, notably the almost equal male to female ratio of cases and the apparent heterosexual transmission[24], which have not been satisfactorily explained.

Prevention of AIDS and HTLV3 infection

Five principle means of prevention are surveillance, counselling, prevention of contamination of blood and blood products, protection of health care staff and general health education.

Surveillance: national surveillance of AIDS in the UK is mainly dependent upon confidential reporting of cases by clinicians to CDSC and CD(S)U[6]; although cases usually present to genito-urinary physicians or to physicians in haemophilia centres, they may present to doctors in other specialties. Therefore, in order to maintain as complete national surveillance of the disease as possible it would be helpful if microbiologists and community physicians could remind their clinical colleagues of this need to report cases or suspected cases of AIDS in their care. In collaboration with the Association of Medical Microbiologists, national surveillance has recently been extended, to include a confidential follow-up of health care staff possibly exposed to HTLV3 infection (CDR 84/52); report forms and details of this scheme are available on request from CDSC.

It is proposed to begin the national collection of data on HTLV3 infections in March 1985 by the laboratory reporting of positive HTLV3-positive antibody tests, which like the clinical reporting of AIDS will be unnamed and in strictest confidence. This reporting system will, it is hoped, provide information about trends in incidence of HTLV3 infection in time, geographically and in persons both within the groups at special risk and outside these groups. Details will be sent to microbiologists in the next few weeks.

Counselling: recommendations for counselling cases and of persons infected with HTLV3 have recently been published in the USA[25], and similar recommendations are likely to be published soon in the UK. They should be asked not to donate blood, body organs, other tissue or sperm. Because of the risk of infecting others by sexual intercourse, infected persons should be advised against multiple sexual partners and insertive anal intercourse. Condoms may limit transmission of infection but are more likely to be effective in heterosexual than in homosexual intercourse. Although spread by saliva is unlikely, infected persons should be advised against intimate kissing and oral-genital contact. As in the control of hepatitis B infection, toothbrushes, razors and any other articles which could become contaminated with blood should not be shared; skin piercing instruments such as hypodermic needles, ear piercing equipment, tattoo and acupuncture needles should be disposable or autoclaved after use. In the event of an accident causing bleeding, the contaminated surfaces should be cleaned with household bleach, freshly diluted 1 in 10 with water.

Blood and blood products: persons with AIDS and in groups at high risk of AIDS, and their sexual contacts, have been asked not to donate blood, and blood transfusion centres now make this specific request to each donor. Some persons in the high risk groups may be HbsAg-positive and, will therefore be excluded from donation, but other infected individuals will not be excluded until a HTLV3 antibody test becomes generally available. Even this will not prevent an infectious antibody-negative person donating blood and the elimination of this risk must await the advent of an HTLV3 antigen test. Pooled factor VIII and factor IX may transmit HTLV3 but this risk should be eliminated by heat treatment[26], which has already began in the USA and is to be introduced in the UK in April 1985. The methods of preparation of hepatitis B vaccine[11] and other blood products, such as immunoglobulins, should inactivate HTLV3 and provide sufficient safeguard against transmission of infection.

Protection of health care staff: methods for protecting health care and other staff possibly exposed to infection with HTLV3 are essentially similar to the methods practised in the prevention of hepatitis B infection[27]. Interim guidelines have now been issued to health authorities for staff coming into contact with patients with AIDS or their specimens[28] and these will be revised within

12 months. Copies of these guidelines are available from DHSS MED-SEB Room 1004, Hannibal House, Elephant and Castle, London SE1 6TE.

Health education: misinformed press and media publicity has generated misconceptions about AIDS and its mode of spread and fostered the erroneous belief that it is highly infectious. The causative agent, HTLV3, spreads mainly by homosexual intercourse and by blood and blood products, in a similar way to hepatitis B; there is no evidence that it spreads by casual social contact, by food, by fomites, or by the airborne route. These facts have been publicised in statements from DHSS and in pamphlets available from the Health Education Council (STD 21), 13-19 Standard Road, London NW10 6HD, the Terrence Higgins Trust Limited, BM Aids, London WC1N 3XX and from the Haemophilia Society, PO Box 9, 16 Trinity Street, London SE1 1DE.

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