

PRACTICE OBSERVED

Practice Research

Epidemic of AIDS related virus (HTLV-III/LAV) infection among intravenous drug abusers

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Abstract
Stored blood samples from 164 intravenous drug abusers who attended a Scottish general practice were tested for HTLV-III/LAV (human T cell lymphotropic virus type III/lymphadenopathy associated virus) infection. Of those tested, 83 (51%) were seropositive, which is well above the prevalence reported elsewhere in Britain and Europe and approaches that observed in New York City.

Introduction
HTLV-III/LAV (human T cell lymphotropic virus type III/lymphadenopathy associated virus) seropositivity has been described among groups of intravenous drug abusers in the United States and lately in Europe. Recently, in a laboratory study of drug users, in which blood samples from patients who had attended various departments of the Royal Infirmary, Edinburgh were used, 38% of heroin users were infected with the virus.

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therefore examines the behaviour, injection practices, and seropositivity of a geographically selected population of known heroin users.

Method

The study group comprised 164 patients of the practice who were known to be or to have been heroin users. There were long term users, casual users, and those who had experimented with heroin but never developed an addiction, making the population representative of heroin users as a whole. Sera that had been taken from each heroin user most recently and stored in one of the region's two virus laboratories were tested for HTLV-III/LAV antibody using commercially available ELISA, and if positive this was confirmed by immunofluorescence or Western blotting techniques.

Results

Serum from 164 heroin users was tested. Of these, 83 (51%) patients were HTLV-III/LAV positive. 60 men and 23 women, mean (SD) age 24 (4.7) years. Eighty one (49%) patients were seropositive, 45 men and 26 women, mean (SD) age 29.9 (5.6) years. There were no sex differences between the seropositive and seronegative groups, but the seropositive patients were significantly older (t = 3.44, p < 0.01). The mean age of onset of intravenous drug abuse in 77 seropositive patients was 19.1 years, and in 60 seronegative patients for whom this information was available it was 19.9 years. The mean duration of heroin use could therefore be estimated as 4.9 years for seropositive patients and 6.1 years for seronegative patients.

Figure 1 shows the cumulative numbers of first recorded seropositive, the first positive serum being taken in September 1983. Similarly, the period

may have seroconverted after the final serum sample was taken. If all of these were now infected there would be an overall prevalence of HTLV-III/LAV of 85%. Interestingly, the prevalence of hepatitis B marker was 84%, 27 patients being negative for both hepatitis B markers and HTLV-III/LAV antibody.

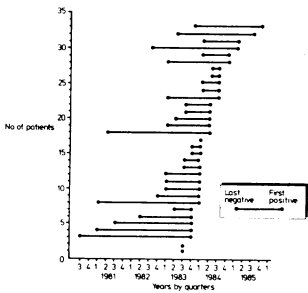


FIG 2—Last negative and first positive HTLV-III/LAV antibody tests for 83 intravenous heroin users against time.

Clinical and epidemiological information drawn from the patients' case summaries indicated consistent and repeated patterns and practices of drug misuse. The primary route of heroin administration was almost exclusively intravenous (98%), and 83% of 116 users for whom information was available reported sharing equipment (table 1). The serological differences between those who reported sharing needles "usually," "sometimes," or "never" were statistically significant (chi-square = 12.2, d.f. 2, p < 0.01), indicating a correlation between the frequency of sharing equipment and seropositivity.

TABLE 1—Self-reported sharing of needles and syringes in 164 heroin users tested and antibody antibodies to the HTLV-III/LAV virus

Table with 4 columns: Sharing needles, who were HTLV-III/LAV antibody negative, who were HTLV-III/LAV antibody positive, Total. Rows include Usual, Sometimes, Never, and Total.

In an attempt to find the causes of the outbreak and rapidly of onset of the epidemic a group of about 40 early seropositive were identified who had been interviewed before January 1984. The group formed an intimate equipment sharing community between 1980 and 1983. Initially using personal equipment only, the sharing of needles and syringes became routine as the supply of clean equipment failed. Particularly important were consistent reports of gatherings of 10 to 20 drug users sharing a single needle and syringe during 1983—not unlike the "shopping galleries" described in the United States. Because the equipment often belonged to a dealer or supplier the people who attended such gatherings each day would vary, increasing the possibility of infection. The equipment was reported to be cleaned by the users, but the cleaning was done by washing with water and sterilisation despite the routine practice of "washout" drawing blood back into the syringe after injection to flush out any remaining heroin. Drawing heroin solution through cigarette or cotton wool filters to absorb

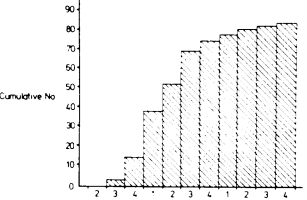


FIG 1—Cumulative numbers of first positive HTLV-III/LAV antibody test results among 83 intravenous drug abusers by quarters.

of time during which seroconversion occurred was known for 33 patients (Fig 2). Twenty five (75%) of the seropositive patients and 21 (35%) of the seronegative patients for whom information was available were known to have begun injecting heroin after the infection is thought to have entered the population. There is no indication therefore that seropositivity is related to the duration of drug misuse. The interpretation of seropositive status is complex, however. Twenty antibody negative patients had had no serum taken since the onset of the epidemic, and of those who had, 11 were known to have injected drugs within three months and 26 to have continued to inject drugs after their final serum sample was taken. Thus any of these 57 patients

impurities provided a source of further injectable heroin when these could be soaked in water. These injected appear to have continued to be used in 1984 and have been moderated only recently owing to anxiety about the risk of AIDS.

From National Health Service identification numbers it could be shown that 88% (144) of the study group were born in Edinburgh and only 2% outside Scotland. Specific questioning about travel within the United Kingdom and abroad up to January 1984 revealed that 98% of the study group outside of Edinburgh (table 1). Two patients were known to have travelled internationally, one to the United States and North Africa but denying drug use in either place, the other to Germany in 1976. The group as a whole rarely travelled outside Edinburgh.

TABLE 1—Reported locations of heroin use of 70 heroin users up to January 1984

Table with 2 columns: Location, No. % of heroin users. Rows include Edinburgh practice area, Edinburgh other area, London, Glasgow, Glasgow, London, Newcastle upon Tyne, Germany, Berlin.

Despite recent reports of a brief influenza like illness shortly after initial exposure a study of 12 cases indicated no such phenomenon among these patients. At the time of writing no patient from the study group had been diagnosed as having AIDS, although a small but growing number are showing AIDS related illnesses such as persistent generalised lymphadenopathy and candidiasis.

Discussion

HTLV-III/LAV infection was observed in half of the intravenous drug abusers studied; this is well above the prevalence observed in previous European studies and approaching that reported in New York City. Although it is not clear how the virus was introduced into this population, the rapid spread of infection (see fig 2) appears to have resulted from a combination of the almost exclusive intravenous use of heroin, the frequency of sharing equipment owing to difficulties in obtaining sterile needles and syringes locally, and injection practices that increase the risk of exposure to the virus. Indeed, the frequency of needle and syringe sharing has been positively correlated with seropositivity and seems to be the most likely cause of the high incidence of infection. Preventing the sharing of equipment may therefore be the quickest and most efficient means of containing the spread of HTLV-III/LAV in drug users. The rapidly with which the epidemic spread in this study population, in addition to the presumed risk of infection from drug users to the non-drug using heterosexual population, shows the need for aggressive intervention in this group in the community.

Managing HTLV-III/LAV infection in general practice necessarily includes both preventing the spread of the virus and dealing with the medical, social, and psychological problems of those already infected. The general practice in this study has a policy of advising intravenous drug abusers who attend the practice of the risk of infection to themselves, their sexual contacts, and children. Appropriate counselling is offered that deals with reducing the risk through altered drug use and sexual behaviour, the importance and desirability of antibody testing, and the specific consequences of infection. In attempting to further prevent the spread of the AIDS related virus it has been the policy of two clinical officers to supply clean equipment to selected drug users on an exchange basis. The clean set being given only on the return of the old one. Local education campaigns, including providing literature with guidelines for safer sex and safer drug use, have been initiated by general practitioners through local self-help groups. An alternative means of reducing equipment sharing, prescribing non-injectable methadone as a heroin substitute, has not yet been introduced because it is

opposed to movements away from prescribing opiate drugs to drug users. This and other interventions, however, must be considered soon and introduced where appropriate to contain the spread of infection.

Many AIDS related medical and social problems are being dealt with, especially with reference to women of child bearing age and those who are pregnant, who on the whole remain reasonably healthy. At the time of writing two women had been recommended terminations, and two had given birth to infants found to be seropositive. An uncertain proportion of these infants will develop AIDS, and a few more will develop AIDS related illnesses which do not fulfill the criteria of AIDS itself. Links with local clinics that specialise in such problems have been established. Recent evidence suggests that heroin users are more at risk of developing AIDS once infected than male homosexuals. In a city such as Edinburgh, with large numbers of heroin users and a high prevalence of HTLV-III/LAV, but with a prevalence of infection among male homosexuals undoubtedly of less than 5% (A McMillan, personal communication, 1985), heroin users may become the leading cause of death among the patients examined in this study.

Our results indicate that geographical variations are likely in the prevalence of HTLV-III/LAV infection among intravenous drug users owing to differing equipment sharing practices and differing times of arrival of the virus in most populations of drug users. An area where the seropositivity is known to be low but where needle and syringe sharing is routine among heroin users must expect the virus to spread rapidly in the absence of immediate intervention.

We thank the doctors and staff of the West Granton Medical Group for their help in collecting samples and information, Dr E Edmond and J D Dickson, University of Edinburgh Bacteriology Department, and I Collocott from the Regional Virus Laboratory, City Hospital, Edinburgh. This work was supported by the Scottish Home and Health Department and the Rosemary Campbell Hepatitis Research Fund.

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100 YEARS AGO

A correspondent sends us the following:—"An old man, nearly octogenarian, who has been in bed for twenty-seven years, in a harmless unconscious state, having the delusion that His Satanic Majesty always stood at his door to prevent him from going out, suddenly one morning early in June, took into his head that the Devil was gone, whereupon he got out of bed, and with nothing on but his shirt, walked down to the quay (nearly a quarter of a mile) and unaided, having been so long in bed, he fell into the water. He was rescued, and although a boat put out from the vessel, he swam ashore. Nobody knowing him, he was taken to a public-house, and a medical man was sent for. He was taken home, where he remained for three days and died, still better for his dip. He had been a church, and is now about to resume his former calling, that of a preacher." British Medical Journal 1886; 2: 61.

Audit Report

Monitoring care of patients with hypothyroidism in a Yorkshire practice

Recent papers have pointed out the desirability of regular monitoring of the adequacy of thyroxine replacement treatment in patients with hypothyroidism and the importance of undertaking both clinical and biochemical assessment. Himmsworth suggested that this should be undertaken yearly, and at the same time haematological screening should be carried out for pernicious anaemia. The names of all patients who were receiving thyroxine replacement treatment were obtained from the practice computer used for repeat prescriptions. From the records of these patients, the care of 32 patients (women and six men) was reviewed. This number gives prevalence rates for hypothyroidism in the practice of 1.3 per 1000 men and 5.8 per 1000 women, which is similar to that reported elsewhere.

The aetiology of the hypothyroidism was idiopathic in 22 (69%) patients, followed partial thyroidectomy in three (9%) and treatment with lithium carbonate prophylaxis for manic depressive psychosis in seven (22%). The latter group has had no evidence of illness in three (9%), and was congenital in one. All patients had

been seen during the previous year, but systematic clinical examination of their thyroid state had not been carried out or at least was not recorded in their notes. Ten (31%) patients had had biochemical thyroid assessment carried out during the previous year, 18 (56%) between two and four years previously, and four (13%) more than four years ago. No patient had had haematological tests screened for the development of pernicious anaemia. This assessment showed that our follow up of patients was inadequate and indicated the need to monitor and review patients with hypothyroidism.—W. HALL, J. D. DICKSON, general practitioner, Settle, North Yorkshire BD24 4JA and J. A. WALKER, Evaluation and Planning Centre, London School of Hygiene and Tropical Medicine, London WC1E 7HT. (Accepted 13 February 1986)

TABLE 1. Thyroxine replacement treatment: clinical judgement of biochemical control. Br Med J 1980; 281: 220-2.

2. Himmsworth W. The appropriate use of diagnostic services in thyroid disease and the laboratory. British Medical Journal 1982; 2: 45.

100 YEARS AGO

Some interesting and graphic notes of the work being done by the National Society for aid to the Sick and Wounded in War, in Belgrade, called from letters sent home by General Laurie and Mr. Kenneth Barrington have been furnished for publication by Lord Wintgate. General Laurie writes: "That it was quite evident that proper work could only be done by undertaking a hospital for ourselves and in our own name. This he has done. He has caused the building given over to him to be altered so as to allow it to be worked to the best advantage, and has retained the Serbian staff of nurses; they are for the most part Serbian ladies, who have offered their services gratuitously. The Government staff is also retained in the hospital and most comfortable. He has added many beds, the wounded patients, as well as provided better clothing for them. This will have a capital effect in removing the prevalent idea as to our want of friendliness to the Serbian nation. From Sofia Mr. Kenneth Barrington writes that he spent December 7th and 8th in visiting the various hospitals, and making the acquaintance of the authorities. At the present moment there are 12 hospitals in the town of Sofia, of which 12 are Government hospitals, and 12 are mainly supported by voluntary agencies. In some cases, the Government supplies food and furniture, while a Red Cross Society supplies the medical staff and some of the nursing staff. The largest of these are the four of the Societe Internationale (90 beds), three of the Bulgarian Red Cross Society, one Jewish hospital, and one Greek hospital. The largest Government hospitals are the military hospital and lunatic asylum (215 wounded), the Ecole Militaire (about 270 wounded), and the Assemblée Nationale. The surgeons in several of the Government hospitals are selected from foreign ambulances. The principal voluntary societies are the Vienna Red Cross, the Darmstadt Red Cross, the Bulgarian Red Cross of which the Bishop of Sofia is president, and the Societe Internationale, of which Mr. and Mrs. Laurie are members. The last society has done excellent work with the credit supplied by the English National Aid Society. With their small funds this society has supported four small hospitals, containing all 90 to 100 patients. Of these four, one is established in the Railway Administration Offices (25 beds), one paid nurse and servant, the rest volunteers; the second was formed by a resident Italian doctor in his own house, he has done the nursing, and at one moment had 100 patients of four wounded, now about twenty-five. The expenses of keeping up this hospital have been borne by the Comité Internationale. The third is one where the nurses are being the nurses, and at one moment had 100 patients untrained in hospital work. The fourth is established in the convent, the nurses being sisters of charity. These four hospitals have been in full work under the medical charge of the Italian and Bulgarian volunteer doctors

since November 22nd. Their funds consist mainly of the amounts received through Mr. Lascelles from his credit at Coutts and Co. They cannot be continued without our support, so I propose to keep them going for another month or at least a cost of about £3,000 to £50,000. A Belgian civil engineer of great experience in this country looks after the economic arrangements and supplies, the whole is worked on an inexpensive but effective system. The wounded in them, as in the other hospitals, look for the most part contented, and even cheerful. Of course, many of the hospitals do not come up to our ideas of cleanliness. However, making all allowances, and remembering the fact that over 4,000 wounded were, in the course of a day or two, thrown upon the hospital, both Dr. Feherstehausen, Miss Stewart, and Mr. Barrington consider that the Bulgarians deserve the greatest credit for having met the emergency so promptly and effectively. The wounded Serbian are, as if anything, made pets of, and a kind word is said to them every passer-by. One brave Serbian captain, who defended the standard of his regiment until he fell with serious wounds, is a special favourite. Close by are lying, side by side, a wounded Serbian and wounded Bulgarian. They had a hand-to-hand fight in the Svinica trenches, and, after wounding each other severely, helped each other along to the Bulgarian field ambulance. Among the wounded are several Turks. Many of the wounded have to use their own great coats for coverings in bed. It is difficult to keep the wards perfectly clean under these circumstances, and it is impossible to buy blankets here. The bales which are sent out will come in very usefully. The Bulgarian Red Cross Society has been formed by a grant from the Government and subscriptions from abroad. The President is the Bishop of Sofia, and the Council is composed of Bulgarian residents in Sofia. In order to systematise the relief offered by the Red Cross and other Societies, the Government has appointed a special Commission, of which Mr. Grefkoff, the late Prime Minister, is President, and Dr. Volkovitch, Chief Surgeon of the Army, is an important member. Mr. Barrington had a consultation with both these gentlemen, and probably the result will be that Mr. Feherstehausen will be given medical charge of a ward in a Government hospital, in which special serious cases will be placed. Miss Stewart, with some English-speaking Bulgarian nurses, has been placed under him to do the nursing. At the same time, Mr. Feherstehausen will act as consulting surgeon and operator in any serious cases of the four Societe Internationale hospitals, and Mr. Stewart will act as consultant in obstetrics to nursing, and attend the heaviest cases. All will be done with the entire cooperation and sanction of the British Consul-General, Captain J. Umley, with the instruments, arrived several days before Mr. Barrington. The instruments were all distributed by Mr. Lascelles as presents from the National Aid Society, and receipts have been given, which will be duly forwarded. (British Medical Journal 1886; 2: 55.)