ORIGINAL ARTICLE

Use of a Dublin inner city A & E department by patients with known HIV-1 infection

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Summary: During the period January 1990 to January 1992 260 patients known to be infected with human immunodeficiency virus type 1 (HIV-1) attended the Accident & Emergency (A & E) Department of St James's Hospital, Dublin. There was a total of 709 visits with a mean annual attendance rate of *2.7,* twice that for the general A & E population, Eighty-nine per cent of patients were intravenous drug users (IVDUs), 9% homosexual/bisexual and 2% heterosexual. Known HIV-1 seropositive patients accounted for 0.7% and 0.8% of the total number of patients who attended A & E in 1990 and 1991 respectively. The majority of patients disclosed their HIV status. Bacterial respiratory tract infection was the single most common reason for attending A & E and for admission to hospital. Seventy-two per cent of IVDUs fulfilled Centers of Disease Control (CDC) criteria for stage II and III disease; the majority of these used A & E for primary medical care, although listed with a general practitioner (GF) and attending during the daytime. Sixty-eight per cent of homosexuals/bisexuals were CDC stage IV with AIDS defining illnesses accounting for 52.6% of clinical presentations. Of this risk category, 79% required medical admission. Homosexuals/bisexuals represent more advanced disease, thus the full impact of HIV-1 infection in IVDUs in this A &; E setting has yet to be realized.

Keywords: Accident and Emergency (A & E), Attendance, acquired immunodeficiency syndrome (AIDS), human immunodeficiency virus (HIV|, intravenous drug use (IVDU)

INTRODUCTION

The first case of the acquired immunodeficiency syndrome (AIDS) in Ireland was diagnosed in September 1980[1]. Twelve years later 1201 people had tested positive for HIV-1 infection2, of whom 266 fulfilled the definition criteria for AIDS[3]. However, mathematical models have estimated that 5 times as many people may be infected as are known to the health authorities[4]. Intravenous drug users account for over half of all cases of infection and for almost 40% of AIDS cases, whereas homo sexuals/bisexuals represent only 16.8% of HIV-1 infected people but 36.1% of AIDS cases[2].

The majority of HIV-1 seropositive patients are centred in the Dublin metropolitan area, where the estimated number of IVDUs vary from 3000-15000[5]. Seroprevalence in this group is estimated at 15%[6]. However, it is generally accepted that a large number of potential HIV-1 seropositive individuals have not been tested and thus others have suggested seroprevalence levels as high as 40%5. while at present the Irish AIDS epidemic would seem to be confined to certain high risk group such as IVDUS and homosexuals there has been a steady increase in the number of heterosexual cases, probably initiated via the IV drug population. Six years ago there was no case of heterosexually-acquired AIDS unrelated to other high risk factors' Now 9 % of Irish A1DS cases are 'heterosexual' m origin, and 11.8% of HIV infected people are in the same category[2]. This large reservoir of infection poses an increasing burden on Irish health services, both economically and with respect to the demand on hospital and community resources.

The Accident & Emergency department m St James's hospital serves one of the areas worst affected by drug use m Dublin, The aim of this study was to define the profile of attendances of known HIV-1 seropositive patients who presented to this A & E department between January 1990-January 1992. In particular we, wished to estimate, the

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seroprevalence of known HIV-1 infection, to identify the conditions with which these patients presented, and their subsequent management requirements.

SUBJECTS AND METHODS

A retrospective cohort study of all computerized A *&* E records of patients with known HIV-1 infection who attended the A & E department in St James's Hospital from January 1990 to January 1992 was conducted. The following information was obtained; (i) demographic characteristics, (ii) risk category, (iii) registration with a General Practitioner, (iv) source of referral, (v) time of attendance, (vi) clinical presentation and (vii) subsequent disposal. Patients who were identified as being HIV-1 seropositive or *'at risk'* on their first visit to A & E were noted. This cohort are among 600 HIV-1 seropositive patients who are registered with the department of Genitourinary Medicine (GUM) in St James's Hospital. All information was cross-referenced with their genitourinary medical records. Clinical presentations were divided into the following categories; AIDS defining illnesses, drug use related, medical or surgical. Patients were subsequently classified according to the CDC classification system of HIV disease,

The number of patients and attendances for the general A & E population during that 2-year period was noted. No data were available on the number of patients that were drug users not admitting HIV serostatus or on any HIV seropositive patients who attended who were not patients of the GUM department.

DATA ANALYSIS

Simple comparisons were done using the chi-square test- Statistical significance was considered at $P<0.05$. Age and sex-specific seroprevalence rates were calculated.

RESULTS

Of 600 known HIV-1 seropositive patients, 260 (43%) attended A & E between January 1990 and January 1992. This represented 0.7% and 0.8% of the new attendances in 1990 (22260) and 1991 (21730) respectively. The mean age of the study population was 29 years (range 20 to 44 years). One hundred and ninety five (75%) of the patients were male, similar to the gender breakdown of the GUM records, 231 (89%) patients were IVDUs, 24 (9%) homosexual/bisexual and 5 (2%) heterosexual. There was a total of 709 visits over the 2-year study period. The mean number of attendances per HIV-1 seropositive patients per year was 2-7, compared to 1,3 visits per patient per year for the general A & E population. The frequency of visits according to gender, age or risk category were similar ($P> 0.05$), There was a 3.2% increase in the total number of attendances in 1991 as compared with 1990, and an increasing proportion of these visits were by patients with AIDS.

Two hundred and twenty six (87%) patients were identified as being HIV-1 seropositive on their first visit to A & E. Of the remaining 34 (13%) patients 20 were documented as being 'at risk', the majority of whom were IVDUs. Nineteen (7%) patients knew that they were HIV-seropositive but failed to disclose their HIV status. Fifteen (6%) patients, 5 in 1990 and 10 in 1991, were diagnosed HIV-1 seropositive post admission from A & E, all of whom were admitted with an AIDS defining illness.

Although 240 (92%) patients stated that they had a general practitioner, the majority of attendances (88%) were by self-referral. Eighty-two per cent of attendances were between 0900 and 1900 hrs within GP consulting hours.

The most common clinical presentation was bacterial respiratory tract infection followed by skin abscesses and cellulitis (Table 1). *Pneumocystis carinii* pneumonia was the most frequent stage IV defining diagnosis. Disease presentation did not differ according to age or gender. Bacterial respiratory tract infections (37%) and AIDS defining illnesses (31%) accounted for over two-thirds of all admissions. Only 11.7% of admissions of IVDUs

Table 1. Primary clinical presentations of A & E patients with known HIV-1 infection. Jan '90-Jan '92

Clinical presentations	No. known HIV-1 sero-positive patients (%)
Pulmonary (total)	98 (37%)
Bacterial respiratory tract infection	66
Pneumocystis pneumonia	15
TB	7
Chest pain	7
Drug use related (total)	60(23%)
Abscess/cellulitis	40
Other	16
Hepatitis B	2
Bacterial endocarditis	2
Surgical (total)	38 (15%)
Trauma	26
Orthopaedic	8
Other	4
Gastrointestinal (total)	30 (11.5%)
Diarrhoea	10
Abdominal pain/vomiting	8
Oral/oesophageal Candida	8
Weight loss	4
Neuropsychiatric (total)	25 (10%)
Psychiatric	11
Seizure	6
Cerebral toxoplasmosis	5
CMV retinitis	2
Cryplococcal meningitis	1
Dermatological (total)	5 (2%)
Herpes	3
Psoriasis	2
Genitourinary (total)	4 (1.5%)

Table 2. CDC status, clinical presentation and disposal for ail A & E attendances by IVDUs and homosexuals/bisexuals, Jan '90-Jan '92

	IVDU (n-663)	Homo/bisexual (n=38)
CDC status		
11/111	478 (72%)	12 (32%)
IV	185 (28%)	26 (68%)
Presentation		
Medical	319 (48%)	15 (39.5%)
Drug use related	194 (29.3%)	–
Surgical	94 (14.2%)	3 (7.9%)
AIDS defining illnesses	56 (8.5%)	20 (52.6%)
Disposal		
Discharged	444 (67%)	7 (18.6%)
Admitted		
Medical	179 (27%)	30 (79%)
Surgical	40 (6%)	1 (2.4%)

were for problems attributable to intravenous drug use. Within the IVDU group, the admission rate for patients with CDC stage 11 and 111 disease was 23% which was significantly less than the 53% rate for IVDUs classified as having AIDS (P<0.01).

The CDC status, clinical presentation and disposal for all A & E attendances for IVDUs and homosexuals/bisexual s is shown in Table 2 does not include 8 visits by heterosexuals.

DISCUSSION

This study has defined the profile of attendances of known HIV-1 seropositive patients at a Dublin inner city A & E department over a 2-year period. The estimated seroprevalence of HIV-1 infection was at least 0.8%, as it did not include haemophiliacs or unrecognized disease. A study carried out at The Johns Hopkins Hospital's Emergency Department in 1988 reported a seroprevalence rate of 2% for known HIV disease, however the rate increased to 6% when unrecognized infection was accounted for by analysing excess serum samples[7]. Similarly, we would need to carry out anonymous unlinked testing to establish the true seroprevatence rate in this A & E setting.

Eighty-nine per cent of patients who attended were IVDUs, reflecting the significant illicit drug problem in Dublin[5]. To date 2% of patients seen acquired HIV-1 through heterosexual transmission. As HIV infection among heterosexuals is increasing throughout the world, this figure is expected to increase significantly over the next decade[8]. HIV-1 seropositive patients were twice as likely to attend A & E as the general emergency population. Contrary to popular belief, IVDUs did not pose a much greater burden on A & E than the homosexual/bisexual or heterosexual patients as the frequency of visits according to risk group were similar. This may be attributed to the availability of 2 walk-in HIV clinics a week in the GUM department which are most frequently attended by IVDUs, thereby reducing their dependence on the A & E service for medical care.

The World Health Organization has predicted that the overall incidence of AIDS is expected to peak in Europe and the USA in the mid 1990s, although it may continue to increase in some underprivileged groups in urban areas[9]. Thus, the use of A & E services by patients with AIDS is likely to increase. This trend is reflected in the 3.2% Increase in the total number of attendances between 1990 and 1991, with patients with CDC stage IV disease accounting for an increasing proportion of the total. Secondly, patients with unrecognized infection are presenting to A & E when they become symptomatic- Fifteen patients were diagnosed HIV-1 seropositive after an AIDS diagnosis via an A & E attendance which was double the number of patients diagnosed with AIDs via the GUM clinic (personal communication). There was a 50% increase in the number who attended A & E in 1991 compared with 1990.

It is reassuring that the majority of patients (87%) disclosed their HIV status on their first visit to A/E and that of the remaining patients at least half were identified as having 'at risk' behaviour. This suggests that medical staff are enquiring about risk factors and that they are receptive and understanding of HIV infection- The 14 patients who were not identified as being *'at risk'* or HIV seropositive are a source of concern. Of those patients 9 were IVDUs, 3 homosexuals and 2 heterosexuals. This supports the findings of a study carried out by Kelen *et al*, which established that clinical variables and risk-factor assessment are neither reliable predictors nor appropriate tools for the identification of HIV infection[7]. This substantiates the need for 'universal blood and body fluid precautions' by all health care workers, as outlined by the Centers for Disease Control[10]. The adherence of universal precautions by the staff in A & E was not assessed at: this time.

The spectrum of disease seen in our patients is similar to that of other inner city areas with high prevalence of IVDUs such as New York[11]. Bacterial respiratory tract infection was the single most common reason for attending A & E and for admission to hospital. Nearly 30% of all presentations by IVDUs were directly related to the abuse of drugs. A total of 18% of these patients had infective conditions (abscesses and cellulitic reactions) related to the site of a recent injection. This is encouragingly less than the rates of, 60% and 29,3% respectively, reported in the study carried out in the A & E department at the Glasgow Royal Infirmary[12]. *Pneumocystis carinii* pneumonia was the commonest AIDS defining diagnosis at presentation, followed by oral/oesophageal candidiasis.

The majority (92%) of patients stated that they had a general practitioner. This figure was unexpectedly high. One explanation may be that having attended the Department of Genitourinary Medicine, these

patients will have been encouraged to register with a GP by the social workers, so that they can avail themselves of the General Medical Scheme which entitles them to free medical care. The majority of attendances were by self-referral, less than 20% were actually referred by a GP.

Patients' dependence on A & E for medical care, despite having a GP and needing medical attention within GP 'working hours', is disturbing. The primary function of the A & E department is the reception, immediate assessment and treatment of patients who have had an accident or who have a medical emergency. Seventy-two per cent of attendances were by IVDUs, CDC stage II or III disease, who used A & E for primary medical care. HIV related disease can be managed in the community in close liaison with hospital services. Supportive of this was the fact that only 23% of these patients required hospital admission which approximates the overall rate of 21% for the general A & E population, and which was significantly less than the 53% admission rate for IVDUs with CDC stage IV disease. Of the homosexual/bisexual patients, the majority of whom were CDC stage IV, 79% required medical admission which reflects the more advanced, disease of this group and appropriate use of A & E resources.

To address this problem an HIV Primary Care Research Project has been set up to identify the role general practice has to play in the care of patients with HIV and AIDS, and to evaluate the problems associated with the development of a comprehensive primary care service for these patients. As a preliminary step combined care cards have been introduced in an attempt to facilitate better communication between both systems and to increase attendance rates at GP services. Satellite clinics have been established to increase the dispensing *of* methadone in order to reduce the problems associated with IV drug abuse.

In summary, [his study highlights a number of features of HIV disease and its impact on a Dublin inner city A & E service. The prevalence of known infection was relatively high at 0.8%, however, it was reassuring that the majority of patients disclosed their HIV status. The burden on the A & E department was reflected in the higher attendance rate among HIV-1 seropositive patients, the inappropriate use by the majority of IVDUs and the very high admission rate among patients with CDC stage IV disease. However, as IVDUs represent more recent infection, the full impact of the HIV epidemic in this A & E setting has yet to be realized. The demand on emergency resources is likely to increase in the future as these patients progress to AIDS.

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