

Prevalence of human immunodeficiency virus risk factors in patients attending an accident and emergency department

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SUMMARY

The prevalence of human immunodeficiency virus (HIV) risk factors was evaluated by questionnaire survey in 1565 consecutive patients who attended an adult A&E department in Brisbane over a 2-month period. The survey revealed that a total of 144 (9.2%) patients could be considered at risk of HIV infection (high-risk group) because of known seropositivity, admission to HIV high-risk factors or engaging in high-risk activities. The remaining 1421 patients who did not acknowledge any high-risk behaviour were classified as an 'unknown-risk' group. More than 70% of the HIV high-risk patient group were under the age of 30 years. A total of 275 (17.6%) patients presented with open wounds and/or needed hospitalization (23 [1.5%] high-risk patients). Of the 490 respondents who engaged in short term sexual relationships, 310 (63.3%) practised unprotected coitus, 32 of these including four seropositives were classified in the high-risk group. The patients were asked if they were in favour of an HIV testing service at their local A&E department; 1324 (86.6%) were in agreement 121 of whom were in the high-risk group. There was no significant difference ($\chi^2 = 0.093$; $P > 0.7$) in opinion between the 'unknown risk' and high-risk patient groups on this matter.

INTRODUCTION

Whilst the risk of transmission of HIV from infected patients to health care workers has been estimated as low ($\leq 0.5\%$) (Barnes, 1988), it is nevertheless real (Weiss *et al.*, 1985; Lifson *et al.*, 1986; Mann *et al.*, 1986; MMWR 1987a; Becker *et al.*, 1989).

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Recent studies (Baker *et al.* 1987; Kelen *et al.*, 1988) have focused attention on A&E room personnel as a group at increased risk from unrecognized HIV infection. Concern has been expressed that a lack of appreciation of the prevalence of HIV infection, coupled with the small number of reported cases of nosocomial transmission of the virus, might lead to a lack of the implementation of appropriate precautions (MMWR, 1989) in the emergency room setting. Accurate knowledge on the prevalence of HIV infection in patients can only be obtained by the serological testing of random or selected groups; (Delomothe, 1989; Lo *et al.*, 1989; Lancet 1989) unfortunately, controversy still surrounds this issue (Fehrs *et al.*, 1988; Rhame & Maki 1989). In the absence of serological evidence, an attempt was made to obtain information on potential HIV infection in A&E patients by identifying those attenders at an increased risk (MMWR 1987b). We retrospectively examined the anonymous questionnaires of a sample of A&E department patients at an inner city hospital, in order to determine the number of patients with HIV risk factors. It is hoped that awareness of the prevalence of HIV risk factors would alert health workers of the potential risks and consequently promote staff training in infection control and patient counselling.

MATERIALS AND METHODS

The study was carried out over a 2-month period in an inner city hospital in Brisbane, Australia, attended by patients of mixed ethnic origin. All patients attending the adult (≥ 16 years) A&E department were asked to complete a questionnaire (Appendix 1). Information was sought on age, sex, reason for attending and whether there was a need for hospitalization. The patients were asked to indicate if they were diagnosed HIV+ or haemophiliac, were homosexual or were an intravenous drug user; and if, in the last 5 years, they were or had been a sexual partner of one of the above groups. A question was asked on condom usage when involved in short-term sexual relationships. Finally, the patients were asked if they were in favour of the setting-up of some form of HIV testing service at their local A&E department.

In addition to those patients who admitted to being diagnosed HIV+, persons who were considered at high risk of exposure to HIV infection included haemophiliacs, male homosexuals, intravenous drug users and the sexual partners of all persons from these groups. Patients who admitted to unprotected coitus with partners not reliably known to be seronegative were also considered at an increased risk of HIV infection.

Answers were recorded by ticking the relevant boxes on the questionnaire, the patients being assured total anonymity. Questionnaires could be returned either in a pre-addressed, postage-paid envelope, or deposited in a collection box within the A&E department prior to departure. Once collected, the data were entered into a database on a Prime 9955 minicomputer (Prime Computer International, Manchester, U.K.) and analysed using the SPSSX statistical package.

RESULTS

The response rate to the questionnaire was typically 33% with 1756 returned; of these 191 were spoiled leaving 1565 usable replies. Only 27 patients used the 'free post' facility, most people depositing their forms in the A&E collection box before leaving the department.

A total of 144 patients (9.2%) were recognized as being potentially at risk of HIV infection (Table 1); all other patients were considered an unknown HIV-risk group for the purpose of analysis. Of the 1565 patients who returned completed questionnaires 773 (51%) were male and 742 female. There was a higher proportion of males in the seropositive/HIV high-risk group than in the unknown HIV-risk group ($\chi^2 = 14.4$; $P < 0.001$) (Table 2). More than 50% of the questionnaire replies came from patients of 30 years of age or less, and statistically ($\chi^2 = 13.05$; $P < 0.001$) there was a higher proportion of patients of this age range in the HIV high-risk group, than in the unknown risk group (Table 2). A total of 275 patients presented with open wounds and/or needed hospitalization, 23 of these were in the seropositive/high-risk group.

The question regarding condom usage in short term sexual relationships was relevant to 490 respondents (31.3%) (Table 3). A survey of these 490 replies revealed that 310 patients, including four seropositive and 28 with risk factors 2–5 (Table 1), admitted to either never using condoms or doing so only occasionally. Analysis showed there to be a significantly higher proportion ($\chi^2 = 46.9$; $P < 0.0001$) of patients within the HIV-high risk group, (risk factors 1–5 Table 1) who practised 'unsafe sex' than in the unknown-risk group (Table 3).

As regards the setting-up of an HIV testing facility at their local A&E department, 1324 (86.6%) patients agreed in principle, 121 of whom were in the designated high-risk group. There was no significant difference in opinion, as regards provision of this facility, between the HIV high-risk and unknown risk groups ($\chi^2 = 0.093$; $P > 0.7$) (Table 4).

Table 1. Seropositive/HIV high-risk category patient totals.

HIV high-risk factor	No. of patients with ≤ 1 risk factor
1) Known HIV (+)	11
2) Haemophilia	4
3) ♂ Homosexual	15
4) Intravenous drug user	19
5) Been a sexual partner to one of above group	25
6) Unprotected coitus with persons of unknown HIV status	70
Total	144
Total with >1 factor	29

Table 2. Demographic details of patients.

Demographic details	Unknown HIV-risk patients	HIV high-risk patients	Normal age distribution
Sex: male	679 (49.5%)	94 (66.2%)	
female	694 (50.5%)	48 (33.8%)	
not given	48	2	
Age Range (years)			
16–20	294 (20.9%)	32 (22.5%)	} (42.0%)
21–30	394 (28.0%)	70 (49.3%)	
31–40	251 (17.8%)	23 (16.2%)	} (38.0%)
41–50	188 (13.4%)	10 (7.0%)	
51–60	126 (8.9%)	6 (4.2%)	
Over 60	155 (11.0%)	1 (0.7%)	(20.0%)
Not given	13	2	
Open wound and/or Hospitalization	252 (17.7%)	23 (16.0%)	

Table 3. Condom usage in short-term sexual relationships. Answers given by unknown-risk and HIV high-risk* groups (*HIV high-risk types 1–5 as defined in Table 1).

Question asked	Unknown-risk patients (n = 1421)	HIV high-risk *patients (n = 74)
Use of condom in short-term sexual relationships		
Always	169 (11.9%)	13 (17.6%)
Sometimes	97 (6.8%)	14 (18.9%)
Never	110 (7.7%)	18 (24.3%)
Not Applicable	1044 (73.6%)	29 (39.2%)
Did not answer	1	

Table 4. Provision of a HIV testing service at local A&E department. Answers given by unknown-risk and HIV high-risk groups.

Question asked	Unknown-risk patients (n = 1421)	HIV high-risk patients (n = 144)
Agree with some form of AIDS test at local A&E Dept		
Yes	1203 (86.7%)	121 (85.8%)
No	184 (13.3%)	20 (14.2%)
Did not answer	34	3

DISCUSSION

Response to the questionnaire was low due in part to the nature of the questions asked which a number of patients, particularly the elderly, found irrelevant or objectionable. This is reflected in the age distribution of the responders, over 50% of whom were under the age of 31 years; but the issue of HIV infection being most relevant to this population (Baker *et al.*, 1987; Kelen *et al.*, 1988).

Accurate information about behaviour which is potentially high-risk in terms of leading to HIV infection, is difficult to obtain from the population (Rhame & Maki 1989). Studies in the United States of America (MMWR 1987c) have shown that 85% of seropositive military recruits and blood donors subsequently admit to high-risk behaviour, even though this was denied at the time of the test. Hence the figure of 9.2% of A&E attenders, estimated here as being at risk of HIV infection may be too low. An earlier study (Kelen *et al.*, 1988) revealed an HIV risk factor prevalence of $\approx 12\%$ in its sample of A&E attenders, and subsequent analysis found one third of these to be seropositive.

Assessment of the extent of unrecognized HIV infection in this group of A&E patients, requires a knowledge of the degree of seroprevalence according to HIV risk factors. In addition, information on HIV prevalence in populations such as heterosexuals with no high-risk behaviour is necessary. Recent studies (Baker *et al.*, 1987; Kelen *et al.*, 1988; Becker *et al.*, 1989) have indicated that between 3% and 5% of A&E patients are found to be seropositive. It is evident that the only way to accurately measure the HIV status of patients is by serological testing of their blood samples.

The transmission of HIV infection from patients has occurred not only through deep and superficial needlestick injuries, but also by direct contact with infected blood by unknown parenteral exposure (MMWR 1986). As well as being found in blood products (Popovic *et al.*, 1984), HIV has been isolated from tears (Fujikawa *et al.*, 1985) and saliva (Groopman *et al.*, 1984), all of which are body fluids health care workers come into contact with regularly. Given that the risk of transmission of HIV infection from infected patients to health care workers is small, it is never the less real, and considering that these patients cannot be identified at presentation, it is recommended that 'universal precautions' (MMWR, 1989) must be taken by all health care workers.

Despite increased public awareness of the AIDS virus, 63% of the patients in this study who engaged in short-term sexual relationships, did not use condoms. It is also notable that 32 ($\approx 43\%$) of the patients who were identified as being either seropositive or HIV high-risk types 2–5 in Table 1, did not practise 'safe sex'. These findings support the view that most people still do not regard themselves at risk from heterosexual relationships (*The Lancet*, 1989).

As calls are made for more widespread HIV testing (Rhame & Maji, 1989) and earlier diagnosis of HIV (Drotman, 1989), various methods of obtaining samples for serological testing are advocated. These methods include anonymous unlinked sampling (Fehrs *et al.*, 1988; Delamothe, 1989) and voluntary confidential (Lo *et al.*, 1989) sampling. This survey suggests that the majority of people will agree in principle to some form of testing service being made available.

CONCLUSIONS

In conclusion, a significant number of patients attending an A&E department admitted to either being seropositive and or indulging in HIV high-risk behaviour. As the HIV epidemic spreads, these numbers will increase and so hospitals, particularly A&E departments, will need to know the number of patients actually affected. There is a requirement within hospitals and possibly in A&E Departments, for a serological testing service coupled with an education and counselling facility. Hospital staff need to be made aware of occupational exposure to HIV and its prevention as outlined in local policies.

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APPENDIX 1

Patients questionnaire

TICK ANY OF THE FOLLOWING IF IT APPLIES TO YOU

- | | | | |
|---|--|---|--|
| 1. Patients study number | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | 7. Haemophilia: (disorder of blood clotting)? | Yes <input type="checkbox"/>
No <input type="checkbox"/> |
| 2. Patients sex | Male <input type="checkbox"/>
Female <input type="checkbox"/> | 8. HIV positive blood test? | Yes <input type="checkbox"/>
No <input type="checkbox"/> |
| 3. Patients age category: years | 10–20 <input type="checkbox"/>
20–30 <input type="checkbox"/>
30–40 <input type="checkbox"/>
40–50 <input type="checkbox"/>
50–60 <input type="checkbox"/>
Over 60 <input type="checkbox"/> | 9. Engaged in homosexual practice in last 5 years? | Yes <input type="checkbox"/>
No <input type="checkbox"/> |
| 4. Reason for attending casualty | Injury <input type="checkbox"/>
Illness <input type="checkbox"/> | 10. Intravenous drug user in last 5 years | Yes <input type="checkbox"/>
No <input type="checkbox"/> |
| 5. If injury, did you have an open wound | Yes <input type="checkbox"/>
No <input type="checkbox"/> | 11. Been sexual partner of anyone from above group? | Yes <input type="checkbox"/>
No <input type="checkbox"/>
Do not know <input type="checkbox"/> |
| 6. Were you admitted to a hospital ward? | Yes <input type="checkbox"/>
No <input type="checkbox"/> | If you engage in short-term sexual relationships | |
| | | 12. Do you use a condom? | Always <input type="checkbox"/>
Sometimes <input type="checkbox"/>
Never <input type="checkbox"/>
Does not apply <input type="checkbox"/> |
| <hr/> | | | |
| 13. Agree to routine HIV testing at local A&E department? | Yes <input type="checkbox"/>
No <input type="checkbox"/> | 14. Comments: | |