Prevalence of HIV infection among drug users in Edinburgh

EDITOR,—Recent evidence suggests that Edinburgh has witnessed a decline in the seroprevalence of HIV among intravenous drug users in recent years. In the 1980s this seroprevalence was recorded at 51%, increasing to roughly 64% towards the end of the decade.^{1,3} The seroprevalence among a cohort of intravenous drug users in north west Edinburgh in 1990, however, was 37.1%⁴ and is currently 35.2% among 378 surviving drug users (unpublished data). On the basis of a recent survey by Lothian Health Board (J Bury, unpublished data) and figures from the Communicable Diseases Unit, Scotland,⁵ the seroprevalence of HIV among the known intravenous drug users in Edinburgh can be estimated at about 31%.

This decline in seroprevalence could partly be attributed to behavioural change among intravenous drug users, probably related to increased awareness of the risks of infection. A reduction in injecting and needle sharing among a group of drug users in Edinburgh has been recorded.⁶ An increasing number of young drug users snort powdered drugs or take drugs orally. The community drugs problems service in Edinburgh deals with an increasing proportion of young non-injectors. In 1988, among new clients tested, the service found a seroprevalence of HIV of 20.8%. In 1991 the seroprevalence was 10%. This difference suggests that seroprevalence is falling when changes in drug using practices are taken into account (A Peters, personal communication).

In addition, there has been a considerable inflow of uninfected people into the sample population of intravenous drug users as the number of new infections through drug injecting has decreased appreciably and deaths among infected intravenous drug users have increased. As Johnson points out, heterosexual intercourse is now the dominant mode of transmission of HIV infection in both people who use drugs and those who do not.⁷ The impact of heterosexual transmission of HIV among intravenous drug users will become apparent in the future.

It is important that account is taken of the varying seroprevalences of HIV prevailing in Edinburgh in different samples of drug users. Results from cohort studies should not be generalised unnecessarily. Despite this apparent decline in the seroprevalence among intravenous drug users in Edinburgh levels of HIV infection remain higher than in many other British centres, and this has profound implications for health care and further transmission of HIV, probably through heterosexual intercourse, in the future.

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- 2 Skidmore CA, Robertson JR, Robertson AA, Elton R. After the epidemic: follow up study of HIV seroprevalence and changing patterns of drug use. *BMJ* 1990;300:219-23.
- 3 Brettell RP, Davidson J, Davidson SJ, Gray JMN, Inglis JM, Conn JS, et al. HTLV-III antibodies in an Edinburgh clinic. *Lancet* 1986;i:1099.
- 4 Ronald PJM, Witcomb JC, Robertson JR, Roberts JJK, Shishodia PC, Whittaker A. Problems of drug abuse, HIV and AIDS: the burden of care in one general practice. *Br J Gen Pract* (in press).

5 Communicable Diseases (Scotland) Unit. Human immunodeficiency virus type 1 (HIV 1): a quarterly report to 31 December 1991. *ANSWER (AIDS News Supplement, CDS Weekly Report)* 1992;No 5.

6 Ronald PJM, Robertson JR, Roberts JJK. Risk-taking behaviour on the decline in intravenous drug users. *Br J Addict* 1992;87:115-6.

7 Johnson AM. Home grown heterosexually acquired HIV infection. *BMJ* 1992;304:1125-6. (2 May.)

Transmission of HIV

EDITOR,—The European Study Group on Heterosexual Transmission of HIV reports that of 159 male contacts of 156 female index patients infected with HIV, 16 were positive for HIV at recruitment and three seroconverted subsequently.¹ Of the 404 female contacts of the 400 male index patients infected with HIV, 75 were HIV positive at recruitment and seven seroconverted subsequently. Eight male and 16 female contacts had used condoms since their first sexual contact with their index partner, and all 24 contacts had remained negative for HIV.

The study group's main analysis combines prospective seroconversions and contacts who were HIV positive at recruitment. We are told that when seroconversion occurred after recruitment, the couple's behaviour in the period between the last negative result of an HIV test and the first positive result determined the couple's characteristics. Why were previous behaviours, which did not occasion transmission, excluded from analysis? For contacts positive for HIV at registration only the couple's past behaviour was relevant. For contacts who were exposed sexually and remained HIV negative it is unclear whether the couple's past, as well as prospective, behaviour contributed to the determination of the couple's characteristics for the purposes of analysis. A better strategy would have been to consider separately contacts who were HIV positive at recruitment and those in whom seroconversion occurred later, not least because different recall biases apply to the reporting of recent and distant behaviour patterns. Were there also differences in ascertainment between centres?

Crude rates of seroconversion can be compared between (a) HIV exposed sexual contacts of female index patients—three seroconversions among 135 (159–16–8) male contacts, or 2.2 per 100 HIV exposed male sexual contacts; and (b) HIV exposed sexual contacts of male index patients—seven seroconversions among 313 (404–75–16) female contacts, or 2.2 per 100 HIV exposed female sexual contacts.

Of course, the relative duration of follow up for couples with a male versus female index patient and the stage of HIV disease in the index patient at recruitment (and subsequently) are inferentially crucial. Will the study group please report these? Analysis should aim to compare transmission of HIV from male (versus from female) index patients per month of HIV exposed sexual contact and specific to disease stage.

The study group claims that there is a significant interaction between the stage of the index patient's disease and sex related efficiency of transmission of HIV, with no difference in transmission rate from men and women in advanced stages of HIV infection but fivefold more efficient transmission from asymptomatic male index patients than from asymptomatic women. A minimal relevant database contains the HIV status of the contact at

recruitment, the sex of the contact, the number of months of HIV exposed sexual contact when the index patient had stage 1 disease, the number of months of HIV exposed sexual contact when the index patient had stage 2 disease, etc. Will the study group please provide further details and data on how it derived the above significant interaction?

Because the stage of the index patient's disease, and probably also the couple's sexual behaviour, will have changed throughout their relationship, analysis should be according to the months for which a disease stage or behaviour applied. Unless the risk specific duration, not just the overall duration, of the relationship was analysed it may be prudent to return a verdict of not proven on the question of more effective transmission of HIV from men to women.

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1 European Study Group on Heterosexual Transmission of HIV. Comparison of female to male and male to female transmission of HIV in 563 stable couples. *BMJ* 1992;304:809-13. (25 March.)

AUTHOR'S REPLY,—The published analysis was performed at the end of the inclusion of couples (March 1991). At that time follow up data were already available for discordant couples included early in the study and 10 seroconversions had occurred in contacts who had been HIV negative at enrolment. For those in whom seroconversion occurred we had to choose whether to analyse them as being HIV negative and take into account the characteristics before the negative test result, or to analyse them as being HIV positive and take into account the characteristics between the last negative test result and the first positive result (that is, the period when transmission occurred). As there were few HIV positive contacts, especially among male contacts, we chose the second option.

When contacts remained HIV negative during follow up it seemed to us more valid to analyse the sexual behaviour reported before the index patient knew that he or she was HIV positive as this knowledge led to an important increase in safer sexual practices in most discordant couples. Furthermore, discordant couples are still being followed up, and behaviour after inclusion is not yet available for all couples.

When only contacts who were positive for HIV at registration are analysed (those who seroconverted being regarded as HIV negative), the relative efficiency of transmission from men compared with from women does not vary widely (odds ratio 2.0 (confidence interval 1.1 to 3.8) instead of 1.9 (1.1 to 3.3)). This agrees with results obtained for other sexually transmitted diseases such as gonorrhoea, for which male to female transmission seems two to three times more effective than female to male transmission.¹

Regarding only those contacts in whom seroconversion occurred, the seroconversion rates estimated on the whole cohort by Sheila Gore are invalid as only couples still having unprotected sexual contact and for whom follow up data are available for analysis (about one third of the original cohort) should be considered. In this group the rates for male and female contacts are not significantly different, but the 95% confidence interval is large and includes the previous estimate (odds ratio 0.8 (0.1-4.0)). Furthermore, the fact