Evaluating the risk of HIV transmission through unprotected orogenital sex

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We analysed a cohort of heterosexual HIV- serodiscordant couples with the aim of evaluating the risk of transmission ascribed to unprotected orogenital intercourse. A total of 135 seronegative individuals (110 women and 25 men), whose only risk exposure to HIV was unprotected orogenital sex with their infected partner, registered 210 person-years of follow-up. After an estimated total of over 19 000 unprotected orogenital exposures with the infected partner not a single HIV seroconversion occurred.

The possibility of HIV transmission through orogenital contacts has been described several times, from man to woman [1,2] as well as from woman to man [3,4]. Evidence that the risk of transmission is low also exists [5], although few studies with good control have evaluated this risk [6]. A recent work found eight cases of probable orogenital transmission among 102 recently infected men who had had sex with men [7], which appears to confer to this route of transmission a role somewhat greater than that thought until now.

We attempted to evaluate the risk of HIV transmission solely attributed to unprotected orogenital sex in a cohort of heterosexual HIV-serodiscordant couples.

Between 1990 and June 2000, in a sexually transmitted diseases and HIV testing clinic in Madrid, we followed an open cohort of individuals who were initially seronegative for HIV, and whose heterosexual steady partner had had a diagnosis of HIV infection confirmed. Both members of each couple were followed in the same clinic with regular 6 monthly examinations carried out separately. All these examinations were carried out by two practitioners who recorded epidemiological data, as well as information about sexual behaviour and other exposures to HIV in a structured questionnaire. Subjects were clearly asked about each type of sexual practice since the last examination. A frequency was established for these practices in an approximate way, based upon the weekly or monthly average number of times it had been practised. A distinction was made between the number of protected (with condom) and

unprotected intercourses. Participants were also asked about ejaculation during intercourse and accidents during the use of a condom.

Moreover, at all examinations, clinical and analytical information was recorded, and the determination of antibodies to HIV was carried out for the member of the couple who was not initially infected.

Individuals who showed any risk exposure to HIV other than to sex with the mentioned partner during the follow-up were excluded from the initial cohort. From the 292 individuals who fulfilled this condition, and for the present analysis, we only took into account the periods between two successive examinations in which the following conditions were fulfulled: to have had some orogenital contact with the infected partner; the absence of vaginal or anal intercourse without a condom; and no episode of breaking or slipping of a condom during anal or vaginal sex. A total of 135 individuals (110 women and 25 men) in the cohort fulfilled the above criteria during one or more periods between two successive examinations (Table 1).

Table 1

For the 110 HIV-seronegative women whose partner was an infected man, 179 person-years of follow-up were taken into account. The mean age at first visit was 28.4 ± 5.1 years (range 18.1–43.7 years). Of these women, 96 performed fellatio on their partner without a condom, which gave an estimated total of 8965 unprotected fellatios, of which 3060 (34%) were with ejaculation in the oral cavity. For one male partner of one of these women balinitis was diagnosed during the follow-up, and for another man condyloma acuminata. Ninety-eight infected men carried out unprotected cunnilingus on the uninfected woman, with an estimate of 8656 practices of this type. During the period in which this practice was performed, 19 of the women concerned presented with a vaginal infection.

The 25 HIV-seronegative men whose partner was an infected woman fulfilled the follow-up criteria for a total of 30 person-years. The mean age at first visit was 35.3 ± 9.1 years (range 19.9–68.1 years). Of these men, 12 practised unprotected cunnilingus on their partner, which amounted to an estimated total of 614 practices of this type. Two of the women concerned were diagnosed with a vaginal infection during the period in which this practice was performed. Moreover, 24 out of the 25 men were passive subjects in an estimated 1081 fellatios without a condom performed by the infected partner. In 441 (41%) of these episodes ejaculation in the woman's oral cavity occurred.

Among the HIV-infected members of the couples, 8.1% had been diagnosed with AIDS and 15.6% had a CD4 cell count lower than 200×10^6/l. For 60 individuals an HIV-1-RNA quantification was available, and six of them presented with greater than 10 000 copies/ml. Of the 135 initially infected partners, 39% received antiretroviral therapy during the follow-up.

The 135 subjects included in the study had an enzyme-linked immunosorbent assay test carried out at the end of follow-up which gave negative results. The possibility was ruled out that this determination might coincide with a window period, by checking the results of tests carried out in later examinations, until June 2001. These results enabled us to obtain the following 95% confidence intervals for the observed null rate of seroconversion: 0–2.2 per 100 person-years, 0–0.25 per 1000 unprotected orogenital exposures, and 0–0.5 per 1000 unprotected fellatios of an infected man.

Among initial cohort participants, four seroconversions to HIV occurred, but all of them were related to unprotected vaginal or anal intercourse and were excluded from the present analysis.

These results concerned 135 individuals, who had had over 19 000 unprotected orogenital contacts with their HIV-

infected partner, without a single case of seroconversion to HIV occurring. This seems to point to a very low probability of HIV transmission related to this practice, when other risk exposures are excluded.

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