We investigated this hypothesis by retrospectively determining the serostatus of IDU taking part in a cohort study in Amsterdam, The Netherlands, from December 1985, and comparing these data with the available seroprevalence estimates in a cohort of homosexual men in the same city. The estimates for homosexual men are based on a combination of two separate cohorts: a hepatitis B vaccine trial cohort (1980–1982) and a cohort to study HIV infection (1984–1987) [1].

One or more serum samples, taken in 1985 or earlier, could be located for 57 out of a total of 190 (30%) IDU who were HIV-antibody-positive at study entry. These sera had been collected when testing for hepatitis B virus markers and subsequently stored. After informed consent had been obtained, the sera were tested for HIV-antibodies using a conventional enzyme-linked immunosorbent assay (ELISA) and confirmed by Western blot. Annual prevalences were estimated by multiplying seropositive proportions by a factor of 0.33 — the fraction of HIV-positive individuals in the cohort study in 1986 [2].

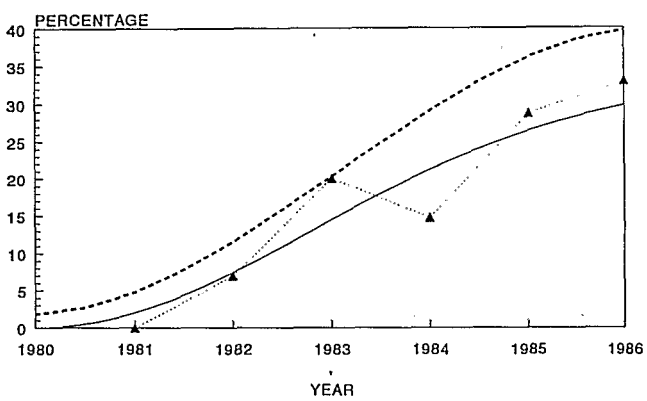

Fig. 1. Estimated HIV seroprevalences compared between injecting drug users (IDU) and homosexual men in Amsterdam, The Netherlands. ▲, IDU prevalence; ——, IDU fitted to a Weibull function; ··· ···, homosexual men fitted to a Weibull function.

Figure 1 shows the annual prevalence estimates of the IDU cohort and a Weibull function that was fitted to these data. It also shows a fitted function with estimates from the cohort of homosexual men. The fitted IDU curve lags behind the homosexual men curve. Taking uncertainties in the estimates into account, this suggests a somewhat later introduction and spread of HIV among IDU. AIDS surveillance data confirm this difference: the first case of AIDS in Amsterdam among homosexual men was diagnosed in 1982, while the first case among IDU was not diagnosed until 1985, by which time 50 cases had already been diagnosed among homosexual men.

Extensive overlap between the two risk groups is apparent, since both homosexual prostitution and homosexual private contacts are common among male IDU: in our cohort 20% reported a history of male prostitution, while 22% reported having had non-professional homosexual contacts [3]. Our data indicate that HIV was introduced among IDU after homosexual men in Amsterdam. Since there is a considerable overlap between these two risk groups, HIV was probably introduced by IDU who had homosexual contact, although spread by IDU infected in other countries cannot be ruled out.

H.J.A. van Haastrecht, J.A.R. van den Hoek, G.H. Mientjes and R.A. Coutinho, *Department of Public Health and Environment, Municipal Health Service, Amsterdam, The Netherlands.*

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Anti-HIV-2-antibody detection by an *in vitro* production method

In vitro secretion of anti-HIV-antibodies by peripheral blood mononuclear cells (PBMC) has been reported to occur during HIV-1 infection [1,2]. HIV-1-specific immunoglobulin-secreting cells are detectable [3], and HIV-1-specific antibody production has also been observed using PBMC from infected children, with or without PBMC stimulation by pokeweed mitogen [4] or Epstein Barr virus [5]. This *in vitro* phenomenon, which persists during the course of HIV-1 infection [1,2], is considered to be a marker of *in vivo* stimulation of the immune system by HIV-1 antigens [3].

AIDS caused by HIV-2 infection presents numerous clinical and biological similarities to HIV-1 infection. We therefore investigated whether PBMC from HIV-2-infected patients secrete *in vitro* HIV-2-specific antibodies.

PBMC from four HIV-2-infected pregnant women were separated from blood. Immunoglobulins adhering to the cell membranes were eliminated by preliminary incubation. PBMC (5×10^6) were cultured without mitogen or antigen. Supernatants were recovered after 6

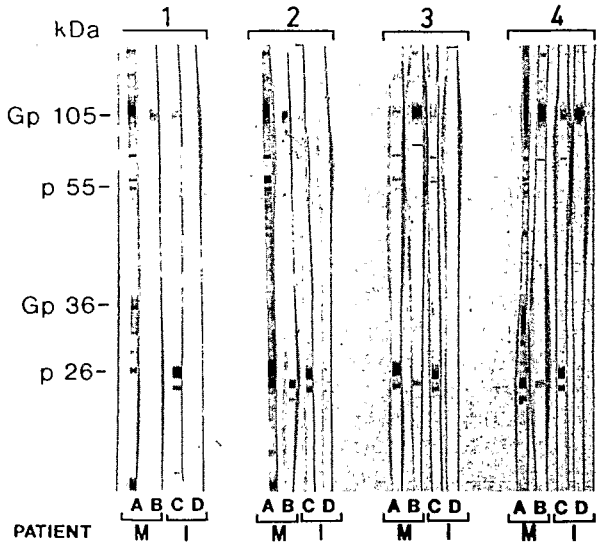

Fig. 1 HIV-2 Western blot of four mother/infant couples (HIV-2-seropositive mothers). A, plasma of mother; B, cellular supernatant of mother (day 6); C, plasma of infant; D, cellular supernatant of infant (day 6); M, mother; I, infant.

days of PBMC incubation and examined by Western blot for the presence of HIV-2-antibody.

Supernatants of PBMC from these patients contained anti-HIV-2-antibodies specific to glycoproteins (gp105 and gp36) and protein. This *in vitro* HIV-2-specific antibody secretion was detected in symptomatic and asymptomatic individuals.

We also investigated whether PBMC from infants at risk of HIV-2 infection (i.e., with HIV-2-seropositive mothers) secreted anti-HIV-2-antibodies.

PBMC from four infants aged 1–8 months were cultured for 6 days and the fluids assayed in HIV-2 and HIV-1 Western blot assays. This analysis demonstrated that supernatant (Fig. 1, lane D) contained anti-HIV-2 antibodies directed against gp105.

These data indicate that *in vitro* anti-HIV-2 secretion by PBMC is observed in HIV-2-infected patients. This phenomenon distinguishes between HIV-2 antibodies passively present via maternal transfer and those actively synthetized. The methodology described may be considered a new simple approach to HIV-2 paediatric diagnosis.

G. Gershy-Damet, E. Veas†, C. Brengues†, K. Koffi, B. Soro‡, M.F. Hughes§, M. Segondy§, A. Serre§, J.L. Rey† and J.P. Vendrell§,
*Institute Pasteur de Côte d'Ivoire, Abidjan, Côte d'Ivoire, and *ORSTOM, Programme SIDA, BP 5045, 34032 Montpellier France, ‡Institut National de Santé Publique, Abidjan, Côte d'Ivoire and the §Institut de Biologie, INSERM U 249, 34060 Montpellier, France.*

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Prognostic significance of soluble CD8 serum levels in HIV-1 infection

We read with great interest the recent report by Nishanian *et al.* [1] on serum soluble CD8 (sCD8) molecules as markers of CD8 T-cell activation in HIV-1 disease. The authors longitudinally measured sCD8 levels in a large group of subjects selected from the Los Angeles cohort. According to their data, sCD8 levels appear to increase soon after HIV-1 seroconversion, and high sCD8 levels predict later falls of circulating CD4 cells as well as AIDS development. These data are in accord with our previous observations that sCD8 levels reflect the extent of the activation state of the CD8 cell compartment during HIV-1 infection [2,3].

We have performed a similar study which further supports the relevance of sCD8 as a prognostic marker of subsequent clinical evolution in HIV-1-infected patients. We retrospectively investigated the possible predictive value of sCD8 on disease progression compared with CD4 cell number in a group of HIV-1-infected patients. sCD8 and CD4 data were obtained for these patients from blood samples collected simultaneously at the time of first seropositivity detection, and at regular intervals (every 3–6 months) during the subsequent follow-up period. We investigated 264 blood samples obtained between June 1986 and June 1991 from 47 HIV-1-positive patients who met the above criteria. Twenty were homosexual men, 24 were drug users and three belonged to other risk categories. The patients were classified according to the Centers for Disease Control (CDC) staging system; at the time of follow-up, 27 subjects were asymptomatic (CDC