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HIGH-RISK SEXUAL BEHAVIOUR AND HIV-1 SUPERINFECTION: AN INDICATION FOR EARLY INITIATION OF ANTIRETROVIRAL THERAPY?

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BACKGROUND: Superinfection is defined as infection with a second HIV strain ≥ 1 month after a primary infection and following seroconversion. Its true incidence is the subject of much debate and studies in homosexual cohorts are limited.

OBJECTIVE: We undertook a prospective pilot surveillance study of superinfection among HAART naïve HIV-1 infected homosexual males who engaged in unprotected receptive anal intercourse and showed an increase in plasma viral load ($\geq 0.5 \log_{10}$ cps/mL) during routine follow-up.

METHODS: Population and clonal analyses of pol gene sequences (PR codons 1–99, RT codons 1–335) were performed on samples taken at the initial diagnosis and at the time of the viral load increase.

RESULTS: Among 8 patients infected with subtype B, 2 showed evidence of superinfection with a different subtype B strain. In phylogenetic analyses of samples from multiple time points, early sequences formed separate clusters to late sequences, with no evidence of viral recombination. One patient had been first diagnosed HIV-positive 5 months earlier, following an acute seroconversion illness, and experienced a recurrence of the same symptoms at the time of superinfection within pol. He lacked neutralising antibodies against subtype B strains. Over the following 6 months he also acquired primary syphilis and genital herpes. A second patient had been first diagnosed HIV-positive 3 years earlier and experienced no symptoms and no other STIs at the time of superinfection. He controlled both the first infection and the superinfection in the absence of HAART, with a set-point viral load of $3.5 \log_{10}$ cps/mL and a CD4 count persistently >1000 cells/mm³.

CONCLUSIONS: HIV-1 infected patients who engage in high-risk sexual behaviour are at risk of superinfection both in the early and established phases of the disease, even in the presence of effective immune responses. Targeted screening based upon sexual history and viral load can achieve a high detection rate. There is a case for early HAART initiation in these patients, both as a public health measure and to address the risk of superinfection.

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