Potent antiretroviral treatment of HIV-infection results in suppression of the seminal shedding of HIV. The Swiss HIV Cohort Study


OBJECTIVE: The amount of HIV in semen likely influences infectiousness. Antiretroviral therapy decreases HIV-RNA in semen, but data on HIV concentrations in semen in a large cohort of men with suppressed HIV-RNA in blood is unavailable. METHODS: Male patients with a treatment-induced reduction of HIV-RNA load in plasma below 400 copies/ml were asked to donate a semen and blood sample. Blood and seminal plasma were tested for the presence of HIV-RNA by the NucliSens method (detection limit 400 copies/ml). Seminal cell samples from 67 patients were further analysed for the presence of HIV-DNA using a nested DNA-polymerase chain reaction. Results of RNA and DNA testing in semen were compared with 55 HIV-positive antiretroviral therapy-naive men. RESULTS: A total of 114 patients participated in the study. Seminal plasma HIV-RNA was detectable in only two patients [1.8%, 95% confidence ratio (CI), 0-4.2%] compared with a detection frequency of 67% in untreated controls [Odds ratio (OR), 0.01; 95% CI, 0-0.03]. Detection of cell-associated HIV-DNA in semen was significantly less frequent (16 versus 38%) in patients receiving suppressive therapy compared with untreated controls (OR, 0.32; 95% CI, 0.12-0.80). CONCLUSION: In patients with treatment-induced suppression of blood viral load the likelihood of having detectable HIV in semen is very low (< 4%). In addition, seminal shedding of cell-free and cell-associated HIV is significantly lower than in an untreated population of HIV-infected asymptomatic men. On a population basis, this effect of therapy may help to reduce sexual transmission of HIV. However, individual patients may still be infected as evidenced by continued shedding of cells harbouring the HIV provirus.