HIV-1 Infection Prevalence and Incidence Trends in Areas of Contrasting Levels of Infection in the Kagera Region, Tanzania, 1987-2000

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Abstract

This study aimed at assessing the extent to which decline in HIV infection prevalence reflects decline in incidence in 3 areas with contrasting initial exposure to the HIV epidemic in the Kagera region of Tanzania. A population sample was recruited for the baseline study in 1987 through a multistage cluster sampling technique to determine HIV prevalence. Seronegative individuals identified in the baseline and subsequent studies were followed up for 3 years to yield trends in incidence that were compared for the 3 areas. The overall age-adjusted HIV-1 prevalence in the high-prevalence area of Bukoba urban declined significantly from 24.2% in 1987 to 18.2% in 1993 and later to 13.3% in 1996 ($P = 0.0001$). In the medium-prevalence area of Muleba, overall age-adjusted prevalence declined significantly from 10.0% in 1987 to 6.8% in 1996 and later to 4.3% in 1999 ($P = 0.0003$), whereas in the low-prevalence area of Karagwe the prevalence declined from 4.5% in 1987 to 2.6% in 1999 ($P = 0.01$). In all 3 areas, the most significant decline was consistently observed among women in the age group 15-24 years. No age group exhibited a significant upward prevalence trend. The HIV-1 incidence for Bukoba urban declined from 47.5 to 9.1 per 1000 person-years of observation in 1989 and 1996, respectively, whereas in Muleba it decreased from 8.2 to 3.9 in 1989 and 2000, respectively. Sex-specific estimates indicated a significant decline among women in the high-prevalence area of Bukoba urban from 51.5 to 9.2 per 1000 person-years at risk ($P = 0.001$). It is concluded that the HIV-1 epidemic in Kagera is on the decrease as reflected by the decline in HIV-1 incidence and prevalence trends particularly among the 15-24 year olds. The decline in the 3 areas of differing magnitude implies that the HIV/AIDS epidemic may be arrested early without necessarily peaking to saturation levels.