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Prevalence and predictors of anal oncogenic human papillomavirus infection among HIV-infected women in Korea

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Background: Since HIV reporting began in Korea in 1985, a cumulative total of 874 Korean women were diagnosed with HIV infection by the end of 2014. To date, there are no data on the prevalence of anal human papillomavirus (HPV) infection in HIV-infected women in Korea. This study aims to assess the prevalence of anal HPV infection and abnormal anal cytology among HIV-infected women in Korea, and to compare them with those of the cervix. Risk factors associated with anal high risk (HR) HPV infection were also determined.

Material/methods: A single-center cross-sectional study was conducted with HIV-infected women in Korea. Participants completed a detailed sexual behavior risk factor questionnaire. Cervical and anal samples were collected for HPV genotyping and cytology. HPV genotype was determined using an PCR based DNA microarray system (HPV Genotyping Chip™ Kit, AGBIO Diagnostics, Seoul, Korea), detecting 13 HR and 19 low risk HPV genotypes. Factors associated with HR-HPV were assessed using multivariable logistic regression.

Results: A total of 48 HIV-infected women were included in this study. The median age was 54 years, 85.4% were married, 51.1% was living alone, 21% reported having sexual intercourse for the first time at ≤ 20 years, 18.8% had a history of commercial sex worker, 27% reported having > 3 male sex partners during life, and about 50% reported having ≥ 1 male sex partners within 3 months of enrollment. No one reported a history of receptive anal sex and 72% of women infrequently used condom. The median CD4+ cell count was 525/μL and 93.7% were currently receiving antiretroviral

therapy, and 83.3% had an undetectable HIV viral load. HPV was more frequently detected in cervix (54.2%) compared to anus (43.8%). Prevalence of HR-HPV infection was also higher in cervix (37.5%) than in anus (29.2%). Multiple HPV types were detected in 6.25% of both anus and cervix. The most commonly detected HR-HPV genotypes were HPV 16 (8.3%) and HPV 52 (8.3%) in cervix, and HPV 18 (8.3%) in anus. HIV-infected women having concomitant cervical HPV infection were more likely to have anal HPV compared with those without cervical HPV (73.1% vs 9%, $P=0.001$). The women with cervical HR-HPV also presented anal HR-HPV in 77.8%, while those without HR-HPV presented in 13.3% ($P=0.003$). Abnormal cytology was more commonly detected in cervix than in anus (16.7% vs 8.3%). In multivariate analyses, concomitant cervical HPV infection, $CD4^+$ cell count $< 500/\mu L$, and age of sexual debut ≤ 20 years were significant risk factors for anal HR-HPV infection.

Conclusions: Anal HPV infection was common among HIV-infected women in Korea. Anal cancer screening should be considered for HIV-infected women who initiate sexual intercourse at an early age, with low $CD4^+$ cell counts, and with concurrent cervical HPV infection