



Human Papillomavirus infection and cervical lesions in HIV infected women on antiretroviral treatment in Thailand



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KEYWORDS

HPV;
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Women;
Thailand;
Cervical lesions;
Cancer;
Antiretroviral therapy;
Cross-sectional study

Summary Objectives: To estimate the prevalence and factors associated with Human Papillomavirus (HPV) infection, HPV genotypes and cytological/histological high-grade (HSIL+/CIN2+) lesions.

Methods: We conducted a cross-sectional study within a prospective cohort of HIV-infected women on combination antiretroviral therapy (cART). Cervical specimens were collected for cytology and HPV genotyping (Papillocheck®). Any women with High-Risk-HPV (HR-HPV), and/or potentially HR-HPV (pHR-HPV) and/or ASC-US or higher (ASC-US+) lesions were referred for colposcopy. Factors associated with HR-HPV infection and with HSIL+/CIN2+ lesions were investigated using mixed-effects logistic regression models.

Results: 829 women were enrolled: median age 40.4 years, on cART for a median of 6.9 years, median CD4 cell-count 536 cells/mm³, and 788 (96%) with HIV-viral load <50copies/mL. Of 214 (26%) infected with HPV: 159 (19%) had ≥1 HR-HPV, of whom 38 (5%) HPV52, 22 (3%) HPV16, 9 (1%) HPV18; 21 (3%) had pHR-HPV, 34 (4%) low risk-HPV infection, and 56 (26%) had multiple genotypes. Younger age, low CD4 cell-counts and low education were independently associated with HR-HPV infection. 72 women (9%) had ASC-US+ and 28 (3%) HSIL+/CIN2+ lesions. HR-HPV infection was independently associated with HSIL+/CIN2+ lesions.

Conclusion: The prevalence of HPV infection and of cervical lesions was low. The HPV genotype distribution supports the use of 9-valent vaccine in Thailand.

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Introduction

Several studies have reported that HIV-infected women are at increased risk of Human Papillomavirus (HPV) infection and of related cervical lesions, including cancer, even when on combination antiretroviral therapy (cART),^{1–3} and this risk may increase with the level of immunosuppression.^{4–7} Whether cART decreases the incidence of HPV-related cervical lesions is still debated.⁸ Indeed, progression from low-grade cervical lesions towards higher grade lesions or cancer takes several years or even decades and cART exposure may have been too short to demonstrate its role in slowing down progression of cervical lesions. Studies have also reported that HIV-infected women without cytological abnormalities harbor a broader range of HPV types and a higher frequency of multiple HPV infections than HIV-uninfected women.^{2,9,10}

In Thailand, studies in the general population have indicated that the prevalence of any type of HPV infection ranges from 6% to 25% and the prevalence of high-risk (HR) HPV infection from 4% to 14%.^{11–13} Higher prevalence for HPV and HR-HPV infection were found among HIV-infected pregnant women, at 35% and 23%, respectively.¹⁴

In the past decade, organized cervical cancer screening has been implemented in the general population by the Ministry of Public Health and the National Health and security Office in Thailand. Between 2005 and 2009, 2.7 million women aged 35–60 years were screened, among whom, 0.9% had low-grade intraepithelial lesion (LSIL), 0.5% high-grade intraepithelial lesions (HSIL), and 0.1% cancers.¹⁵ In 636 HIV-infected women participating in a prevention of mother-to-child transmission (PMTCT) program in Bangkok, 16% had cervical cell abnormalities (atypical squamous cell of undetermined significance or higher grades (ASC-US+)).¹⁶ In another study among 385 HIV-infected women attending in a counseling and testing center in Bangkok, 11% had LSIL, 5% HSIL and 0.5% ICC.¹⁷ To date in Thailand, as in other South-east Asian countries, no vaccination program for HPV has been implemented.

The objectives of the present study were to estimate the prevalence of HPV cervical infections and their genotype distribution in a cohort of HIV-infected women receiving cART, and to assess the prevalence of cytological abnormalities and histological cervical lesions. We also explored factors associated with HR-HPV infections and those associated with the presence of high-grade cervical lesions.

Materials and methods

Study design and settings

The PapilloV study was initiated in February 2012 in 24 hospital sites across Thailand. The cohort comprised HIV-infected women already followed in an existing HIV cohort of patients receiving cART (the PHPT Cohort, NCT00433030), and HIV-infected women receiving standard HIV care in 7 of the same sites. The PHPT Adults Cohort Study, began in 1999, initially recruiting women who had participated in clinical trials on the prevention of mother-to-child transmission of HIV,^{18,19} then extended enrollment to their partners and any other adults in the same hospital sites. Criteria for initiation of therapy were based on national and World Health Organization (WHO) guidelines at the time. Details are described elsewhere.²⁰

Inclusion criteria

HIV-infected adults' women currently receiving cART were informed and enrolled in the PapilloV study after written informed consent. Women were not enrolled if they were virgins, had had a total hysterectomy or were pregnant beyond 12 weeks gestational age, or participating in a HPV vaccination trial.

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