Prevalence and incidence of human papillomavirus infection, cervical abnormalities, and cancer in a cohort of HIV-infected women in Mumbai, India: a 12-month follow-up

Petros Isaakidis, Sharmila Pimple, Bhanumati Varghese, Homa Mansur, Joanna Ladomirska, Neelakumari Sharma, Esdras Da Silva, Carol Metcalf, Severine Caluwaerts, Petra Alders, Tony Reid

1MSF, Mumbai, India; 2Preventive Oncology Department, Tata Memorial Hospital, Mumbai, India; 3MSF, Brussels, Belgium

Contact: msfocb-asia-epidemio@brussels.msf.org

Background
HIV-infected women are at a higher risk of cervical intraepithelial neoplasia (CIN) and cervical cancer than women in the general population, partly due to a high prevalence of persistent human papillomavirus (HPV) infection. Generally, little attention is given to screening HIV-infected women for HPV infection and cervical lesions in resource-constrained settings. We describe the outcomes of a programme to detect and treat HPV infection, cervical lesions, and cancer in a cohort of HIV-infected women attending an antiretroviral treatment (ART) clinic in Mumbai, India.

Methods
In 2010, MSF and the Tata Memorial Hospital, Mumbai, introduced routine annual pap smears and HPV-DNA testing of women attending an ART clinic. Women with abnormal test results were offered cervical biopsy and treatment, including treatment for sexually-transmitted infections (STIs), if indicated. Patients were excluded if they were pregnant, or had a critical general condition. Sputum-positive TB patients were screened after sputum/culture conversion. All patients with CIN received cryotherapy or loop electrosurgical excision procedure (LEEP) and were followed up after 1 month. Patients with carcinoma were offered radiotherapy followed by chemotherapy, and were followed up monthly.

Results
94 HIV-infected women were screened. They had a median age of 38 years (Standard Deviation; 7.6); median CD4-count of 143 cells/µL [interquartile range [IQR 79–270]]; and median time on ART of 1.9 years (IQR 0.9–3.5). HPV-DNA was detected in 27 of 92 women (29.3%), and 16 of 94 (17%) had either low-grade or high-grade squamous intraepithelial lesions (LSIL or HSIL) on pap smear. Overall, more than half the women had cervical inflammatory reactions, including STIs. Of 42 women who had a cervical biopsy, four (9.5%) had CIN-1, five (12%) CIN-2, and two (5%) had carcinoma-in-situ. All but one of these women had HPV-DNA detected (relative risk 39.8, 95% CI 5.27–132.85). Five patients received cryotherapy and four patients underwent LEEP. One patient diagnosed with cancer received radiotherapy and chemotherapy, and one patient diagnosed with cancer died before treatment initiation. 10 of 11 patients successfully completed treatment. By the end of 2011, 55 women had completed at least 12 months of follow-up and had been rescreened. No new cases of HPV-infection, LSIL, or HSIL were detected on rescreening. The programme was nurse-led and screening cost per patient was 450 INR (approximately EUR 7). Treatment costs are currently being determined.

Conclusions
The high prevalence of HPV infection, STIs, and cervical lesions detected among women attending an ART clinic demonstrates a need for routine screening of all HIV-infected women. Screening costs and resources were not high however treatment costs have not been determined. Large cohort studies are needed to determine the optimal screening interval, especially when resources are limited.