RESEARCH COMMUNICATION

# Human Immunodeficiency Virus Infection in Women Undergoing Treatment for Cervical Neoplasia: Prevalence and the Feasibility of Routine Screening

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### Abstract

**This study was undertaken to evaluate the prevalence of human immunodeficiency virus (HIV) infection and the feasibility of routine HIV screening in women undergoing various treatment of cervical neoplasia at Chiang Mai University Hospital between October 2004 and October 2006. Four hundred and ninety five women were recruited for HIV screening with the opt-out approach performed. In this study, thirty-seven (7.47%) women had a previous diagnosis of HIV infection with a mean duration 4.16 years (range: 1-15 years). The remaining 458 women consented to have an HIV test. Six women (1.31%) were newly identified as HIV seropositive, giving an overall prevalence of 8.69%. In conclusion, the prevalence of HIV infection in this study was considerably high and routine HIV screening is feasible because of the high acceptance rate.**

**Key Words:** Human immunodeficiency virus - cervical neoplasia - screening

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## Introduction

Human immunodeficiency virus (HIV) infection has become an epidemic worldwide. In Thailand, HIV infection or the consequence acquire immunodeficiency syndrome (AIDS) is a major health burden. The Thailand Working Group estimated that approximately 1 million people have been infected with HIV and 540,000 people were living with this infection at the end of 2006. Additionally, 17,000-18,000 new cases are diagnosed in Thailand each year. Based on these data, effective intervention for HIV prevention is therefore mandatory (The Thailand Working Group on HIV/AIDS Projection 2001).

The current trends from available data suggest that the proportion of HIV-infected women is increasing at a higher rate than that among men. Women with HIV infection have an increased risk of co-infection with human papillomavirus (HPV), particularly of high risk types, persistent HPV infection and cervical intraepithelial neoplasia (CIN) (Goncalves et al., 1999; Massad et al., 1999; Harris et al., 2005). These co-infections would apparently put HIV-infected women at greater risk of developing invasive cervical cancer unless they are intensively screened and treated for CIN. In addition, HIV-infected women experience a high rate of recurrence after treatment for CIN (Gingelmaier et al., 2007; Massad et al., 2007). Despite these well known synergies, the health care responses have generally been separate. Detection of HIV among women with cervical neoplasia is crucial for a holistic approach among such individuals. Accordingly, the policy of the Gynecologic Oncology Division, Chiang Mai University Hospital is to perform HIV screening in women planned for treatment of cervical neoplasia after notification that HIV testing will be carried out unless the patient declines (opt-out approach). This study was prospectively undertaken to evaluate the prevalence of HIV infection and feasibility of routine HIV screening in women undergoing treatment of cervical neoplasia.

## Materials and Methods

All women who underwent either ablative or excisional treatment for cervical neoplasia at Chiang Mai University Hospital between October 2004 and October 2006 were approached to be the study participants. Women who consented had a serum HIV test using a combination of enzyme-linked immunosorbent assay (ELISAs) and Immunocromatographic tests. The Research Ethic Committee of the Faculty of Medicine, Chiang Mai University approved the study.

Data were analyzed using the statistical package SPSS for windows to describe number, percentage, range, and 95% confidence interval for descriptive statistics.

## Results

During the study period, 495 women undergoing loop electrosurgical excision procedure (476), cold-knife

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conization (18), and cryotherapy (1) were recruited. Thirty-seven (7.47%) women had previous diagnosis of HIV infection with its mean duration 4.16 years (range: 1-15 years). The remaining 458 women consented to have an HIV test. In this study, six women (1.31%) were newly identified as HIV seropositive, giving an overall prevalence of 8.69% (95% confidence interval = 6.36 – 11.52) of HIV infection in the present study.

Among 37 known cases, 9 (21.0%) had a previous history of opportunistic infection including *Pnemocystic jiroveci* pneumonitis, cytomegaloviral retinitis, cryptococcal meningitis, and tubercolous pneumonitis. Thirty-one (72.1%) were concurrently treated with antiretroviral therapy at the time of cervical neoplasia diagnosis. The result of a CD 4 cell count within 6 months was available in 35 women. The mean CD4 was 287cells/μL (range: 40-695 cells/μL).

In 6 women who were newly diagnosed as HIV positive, only 2 women reported risky behavior, including polygamous relationships and partner with multiple partners. All HIV positive women were referred to a special clinic for further detailed counseling and specific treatment.

## Discussion

HIV testing is a key intervention for HIV prevention strategy. A meta-analysis demonstrated an approximately 70% reduction in unprotected sexual intercourse among persons who knew their seropositive status compared to those who were unaware of it (Marks et al., 2005). Therefore, the awareness of HIV serostatus plays a potential role in reducing HIV transmission to others. The Centers for Disease Control and Prevention (CDC) recently recommended routine HIV testing in all health care settings (Branson et al., 2006). The rationale for this recommendation to expand HIV testing was to obtain and not miss an early diagnosis of HIV infection. Since the prognosis of patients with HIV infection has dramatically improved after the introduction of the highly active antiretroviral therapy (HAART) and comprehensive medical care, early diagnosis of HIV infection enables more patients to receive life-saving treatment, resulting in extended life and improved quality of health. Additionally, even in areas with a relatively low prevalence of HIV, routine screening in the era of HAART is still cost-effective (Janssen 2007). Revised CDC recommendations also state that health-care providers should initiate screening unless the prevalence of undiagnosed HIV infection in their population has been documented at less than 0.1% (Branson et al., 2006). In this study, the overall prevalence of HIV infection in women undergoing treatment for cervical neoplasia was 8.69%, in whom newly diagnosed cases from screening represented 1.31%. Based on the considerably high prevalence, our routine HIV screening policy in such women appears to be reasonable.

In the literature, acceptance of HIV screening varies from only 12% to 100% (Abu-Rustum et al., 2001; Zachariah et al., 2003; Chan et al., 2004; Fylkesnes and Siziya, 2004; Matovu et al., 2005; Gichangi et al., 2006; Thomas et al., 2007). In the present study, no-one refused HIV screening, giving a 100% acceptance rate. The wide variation of acceptance of HIV screening in previous reports may be due to a number of differences including the place of screening and type of screening approach. People in a research setting are more likely to accept HIV screening than those in a routine care setting. The type of screening approach is also known to be an influential factor on the acceptability of HIV screening. The opt-out approach is found to have a higher acceptance rate than other screening methods. The revised CDC recommendations for HIV testing, therefore, preferred an opt-out screening approach where legally allowed (Branson et al., 2006).

HIV screening on the basis of risky behavior fails to identify a substantial number of persons with HIV infection because some of them do not consider themselves at risks or do not disclose such risks (Branson et al., 2006). In this study, only 2 of 6 newly diagnosed HIV-infected women reported behavioral risks in contracting HIV infection. This finding implied that two-thirds of HIV-infected women would be missed if HIV screening depended on a risk assessment basis. It also supports routine HIV screening without a risk assessment as per the revised CDC recommendation (Branson et al., 2006)

This study was hampered by a number of limitations. The most important was that the high acceptance of HIV screening which may be due to failure in realizing the "right to refusal", although this option was clearly stated in the consent record form. Moreover, this study was conducted in a teaching hospital setting, which could have a different population background from that in other areas. Further studies of a specific population may help to verify whether routine HIV screening is of value.

In conclusion, the prevalence of HIV infection in women undergoing treatment in this study was relatively high at 8.69%. Routine HIV screening is feasible because of the observed high acceptance rate.

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