

Prevalence of High-Grade Cervical Intraepithelial Neoplasia or Worse in Southern-Thai Women with Atypical Squamous Cells of Undetermined Significance (ASC-US) from Cervical Cytology

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Objective: To study the prevalence of high-grade cervical intraepithelial neoplasia (CIN) or worse in southern Thai women with atypical squamous cells of undetermined significance (ASC-US) from cervical cytology.

Materials and Methods: The present study was a retrospective cross-sectional analytic study. Medical records from outpatient clinic of Department of Obstetrics and Gynecology between January 1, 2012 and October 31, 2017 were reviewed. Statistical analyses were performed.

Results: Prevalence of high-grade CIN or worse in women with ASC-US from cervical cytology was 14.4%. Of these, 12.4% were high-grade CIN and 2.0% were cervical cancer. Multiple sexual partners was significantly associated with underlying high-grade CIN or higher ($p < 0.01$).

Conclusion: Prevalence of high-grade CIN or worse in southern Thai women with ASC-US from cervical cytology was 14.4% and multiple sexual partners was significantly associated with underlying high-grade CIN or worse in the present population.

Keywords: Atypical squamous cells of undetermined significance (ASC-US), Cervical carcinoma, High-grade CIN

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Cervical cancer is the most common gynecologic malignancy. Since Pap smear has been used as screening method for cervical cancer, data from USA and Europe showed the incidence of cervical cancer has decreased by about 80%⁽¹⁾. However, half of women who were diagnosed with cervical cancer have never been screened by Pap smear, and 10% have never been screened by Pap smear in the last five years before the cancer diagnosis⁽²⁾. Although there is an inadequate screening program of cervical cancer in some areas, Pap smear is the effective cervical cancer screening method due to the decrease of mortality rate

from cervical cancer, worldwide.

The goal of cervical cancer screening is to detect and treat precancerous lesions. Approximate time for progression from precancerous lesions to cancer is about 10 years⁽³⁾. Many factors promote cervical cancer such as smoking, immunocompromised, and HIV infection^(3,4).

The Bethesda System for reporting cervical cytology has been used to report Pap smear results⁽⁵⁾. Treatment method is selected according to severity of cellular abnormality. Atypical squamous cells of undetermined significance (ASC-US) is a low-grade cervical cytologic abnormality. There are a variety of treatment options for ASC-US such as repeat cytology, human papillomavirus (HPV) testing, or immediate colposcopy⁽⁶⁾. In Thailand, there are limitations for the management of ASC-US with HPV testing. Thus, the main approaches for ASC-US in Thailand are repeat cytology and immediate colposcopy.

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Although ASC-US is a low-grade cytologic abnormality, data from prior studies showed that high-grade cervical intraepithelial neoplasia (CIN) or worse were found from colposcopy-directed biopsy in this population. From previous studies, prevalence of high-grade CIN was 5% to 18.5%⁽⁷⁻¹²⁾. Moreover, cervical cancer was also found in some studies. The present study aimed to investigate the prevalence of high-grade CIN or worse in southern-Thai women with ASC-US from cervical cytology.

Materials and Methods

The present retrospective cross-sectional analytic study was performed at Hatyai Hospital, Songkhla, Thailand. After approval by the Ethical Committee (protocol number 77/2560) of Hatyai Hospital, medical records of patients with ASC-US from the cervical cytology that attended the outpatient clinic of the Department of Obstetrics and Gynecology between January 1, 2012 and October 31, 2017 were reviewed. Sample size was calculated by formula for estimating an infinite population proportion. When α was 0.05, error (d) 0.05, design effect (deff) 1.00, and expected prevalence from Limpvanuspong et al study was 0.103⁽¹²⁾, the sample size plus 10% drop out was 156. All patients with ASC-US underwent a colposcopy-directed biopsy or endocervical curettage. Exclusion criteria were women with prior squamous or glandular abnormal cytology, anti-HIV positive, pregnancy, history of hysterectomy or conization, and women with history of pelvic radiation. Incomplete medical records were also excluded from the study.

The 2001 Bethesda System was used to describe cytological abnormality in the present study. Cervical tissue was collected from colposcopy-directed biopsy or endocervical curettage, depending on colposcopist findings. High-grade CIN means lesions of CIN2 to carcinoma in situ and higher lesion was described as cervical carcinoma.

Patients with high-grade CIN from colposcopy-directed biopsy were treated by loop electrosurgical excision procedure or conization. For cervical carcinoma, Gynecological Oncologist was consulted for clinical staging and treatment.

Data were analyzed using the IBM SPSS Statistics for Windows, version 21.0 (Armonk, NY). Descriptive statistics were used for demographic data and summarized as percentages and mean with standard deviation (SD). Categorical data were evaluated with Chi-square test. Statistical significance was considered when p-value was less than 0.05.

Table 1. Characteristics of the participants (n = 153)

Characteristics	n (%)
Age (years), Mean \pm SD	44.5 \pm 1.3
Occupation	
Full-time worker	65 (42.5)
Housewife	22 (14.4)
Business owner	51 (33.3)
Government employee	13 (8.5)
Student	2 (1.3)
Parity	
Nulliparity	38 (24.8)
Multiparity	115 (75.2)
Menopausal status	
Pre menopause	142 (92.8)
Post menopause	11 (7.2)
Contraception	
Oral contraceptive pills	24 (15.7)
DMPA	9 (5.9)
Implantation	5 (3.2)
Male condom	7 (4.6)
Female sterilization	24 (15.7)
No contraception	84 (54.9)
Number of sexual partners	
Single partner	141 (92.2)
Multiple partners	12 (7.8)

DMPA=depot medroxyprogesterone acetate

Results

The characteristics of the 153 participants are presented in Table 1. Mean age (mean \pm SD) of the participants was 44.5 \pm 1.3 years. More than 40% were full-time workers, 75.2% of them already have a child. Almost all participants were premenopausal. All women in the present study were sexually active but nearly 50% of them did not use any kind of contraceptive methods. About 90% of participants had a single sexual partner.

Pathological reports of all participants are presented in Table 2. Low-grade CIN or less severity was 85.6%. High-grade CIN and cervical carcinoma were detected 12.4% and 2.0%, respectively. The factor significantly associated underlying high-grade CIN or worse in southern-Thai women with ASC-US from cervical cytology was multiple sexual partners as shown in Table 3.

Table 2. Pathological results from colposcopy-directed biopsy or endocervical curettage

Histopathology	n (%)
Normal or cervicitis	114 (74.5)
CIN1	17 (11.1)
CIN2	3 (2.0)
CIN3	13 (8.4)
Carcinoma in situ	3 (2.0)
Squamous cell carcinoma	3 (2.0)

CIN=cervical intraepithelial neoplasia

Table 3. Factors associated with high-grade CIN or worse

Characteristics	Pathology, n (%)		Chi-square p-value
	Normal-CIN1	CIN2-cancer	
Age (years)			0.61
<50 years	121 (85.8)	20 (14.2)	
≥50 years	10 (83.3)	2 (16.7)	
Parity			0.41
Nulliparity	35 (92.1)	3 (7.9)	
Multiparity	96 (83.5)	19 (16.5)	
Menopausal status			0.37
Pre menopause	120 (84.5)	22 (15.5)	
Post menopause	11 (100)	0 (0.0)	
Contraception			0.32
Contraceptive used	56 (81.2)	13 (18.8)	
No contraception	75 (89.3)	9 (10.7)	
Number of sexual partners			0.01
Single partner	123 (87.2)	18 (12.7)	
Multiple partners	8 (66.7)	4 (33.3)	

CIN=cervical intraepithelial neoplasia

Discussion

Cervical cytology is one of the screening tests for cervical cancer. Despite normal cytological result, hidden precancerous lesion or even cervical cancer may be present. The high prevalence of high-grade CIN or worse in the present study support the management of women with ASC-US cytology by colposcopy.

Earlier studies noted that the prevalence of high-grade CIN was 5% to 18.5%⁽⁷⁻¹²⁾. Moreover, cervical cancer was also found in some studies. Thus, those findings were similar to the results of the present study.

The authors' data found that the prevalence of high-grade CIN or worse in southern-Thai women with ASC-US cytology was 14.4%, similar to the study from Limpvanuspong et al in 2008 done in Thailand, which the prevalence of high-grade CIN and cervical carcinoma were 9.1% and 1.2%, respectively⁽¹²⁾. Suntornlimsiri in Chiangmai province reported a higher proportion of patients with high-grade CIN and cervical cancer of 26.4% and 7.9%, respectively⁽¹¹⁾. This difference may be from the higher incidence of cervical cancer in Chiangmai province, smear taking process, or quality of cytology from several cytological laboratories⁽¹³⁾.

In the present study, the factor significantly associated with underlying high-grade CIN or worse in southern-Thai women with ASC-US from cervical cytology was multiple sexual partners ($p < 0.01$). However, this factor had not been mentioned in other studies from Thailand^(11,12).

Retrospective design was a limitation of the present study. The study did not only confirm the results of the previous studies but also demonstrated the associated factor of having high-grade CIN or worse in southern-Thai women with ASC-US. Future study may focus on factors associated with the underlying high-grade CIN or worse such as HPV infection, immunocompromised patient, or HIV infection.

The present study showed the prevalence of high-grade CIN or worse in southern-Thai women with ASC-US from cervical cytology was similar to most of the other areas in Thailand. However, physician should carefully consider patients with multiple partners because the risk of having occult high-grade lesions was higher than in other population. Immediate colposcopy in this group of patients is advised. However, the present study was not designed to investigate the effects of the number of sexual partners on the presence of high-grade lesions. Study about this issue may be performed in the future.

Conclusion

The prevalence of high-grade CIN or worse in southern-Thai women with ASC-US from cervical cytology was 14.4%, and multiple sexual partners was significantly associated with underlying high-grade lesions in this population.

What is already known on this topic?

Prevalence of high-grade CIN or worse in women with ASC-US from cervical cytology varies from 5% to 18.5%, depend on population. There is little data in

southern-Thai women.

What this study adds?

Prevalence of high-grade CIN or worse in Southern-Thai women with ASC-US from cervical cytology was 14.4%. If HPV DNA testing is not available, immediate colposcopy in this group of patients may be beneficial to detect any high-grade lesions early.

Conflicts of interest

The authors declare no conflict of interest.

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