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Prevalence of Abnormal Conventional Pap Smear in Pregnant Women, Chonburi Hospital

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ABSTRACT

Objective: To determine the prevalence of abnormal Pap smears implemented by the conventional technique in pregnant women who attend the antenatal care clinic of Chonburi Hospital.

Materials and Methods: This cross-sectional study was performed at the antenatal care clinic, Chonburi Hospital between June and September 2013. The data was obtained using a questionnaire. Conventional Pap smears were taken. The cytological results were reported based on the Bethesda classification system 2001. Abnormal results were defined as atypical squamous/glandular cells or more.

Results: Four hundred and seventy-two pregnant women participated in the study. The age of the participants ranged from 14 to 43. The mean age was twenty-four years old. They were predominantly Thai nationals (86.8%). Abnormal Pap smears were found in 21 of the 472 participants. The prevalence of abnormal Pap smears was 4.4%. The prevalence of abnormal Pap smears was 2.7% (8 in 299) with 0.3% (1 in 299) of HSIL in women aged 21 or more and 7.5% with 2.3% of HSIL in the younger age group.

Conclusion: The prevalence of abnormal conventional Pap smears in pregnant women, Chonburi Hospital was 4.4%.

Keywords: prevalence, conventional, pap smear, pregnant

Introduction

It is estimated that there were 530,000 new cases and 275,000 deaths from cervical cancer in 2008. Cervical cancer is the second most common cancer in women worldwide, and the incidence is high in Thailand (24.5 per 100,000 women) with about 10,000 new cases found every year[1]. Invasive cervical cancer is considered to be a preventable disease because it has a long preinvasive state, and the implementation of a screening programme can do much to reduce the incidence and mortality rates. However, up to 60% of cervical cancer cases in developing countries have never been screened[2].

Invasive cervical cancer is not common during pregnancy; in the United States, the incidence is 1.2 cases per 10,000 pregnancies[3]. However, the highest rate of cervical abnormality occurs in women of reproductive age and the goal of screening is to identify a preinvasive lesion to prevent the abnormality from progressing to an invasive state. Pregnancy provides

an opportunity for women of a reproductive age to meet an obstetrician and discuss their health concerns, and prenatal care offers an excellent opportunity to implement cervical screening in patients of a young age.

A conventional Pap smear is the standard method for cervical cancer screening. It poses no risk to the fetus and is not associated with an increased rate of miscarriage or preterm labor. Although cytologic specimens are more difficult to interpret in pregnancy because of hormonal changes, a Pap test seems able to demonstrate the equivalent accuracy in both pregnant and non-pregnant women[4].

Cervical cancer screening is recommended for pregnant women as an essential component of pre-natal care in many developed countries. According to the WHO (World Health Organisation), the Department of Health, Ministry of Public Health of Thailand recommends a pelvic examination as part of an antenatal care programme, but cervical cancer screening is not included[5]. In contrast, Pap smears are generally done at the first prenatal visit in many developed countries, such as the United States, and although this is considered to be necessary, safe and acceptable for a routine prenatal test, it is still challenged in Thailand.

This study aims to determine the prevalence of abnormal Pap smears implemented by the conventional technique in pregnant women who attend the antenatal care clinic of Chonburi Hospital.

Materials and Methods

The study was approved by the Ethics Committee of Chonburi Hospital, Thailand. Verbal information was provided, and written consent was obtained prior to inclusion in the study. This cross-sectional study was performed at the antenatal care clinic, Chonburi Hospital between June and September 2013. The study is centered on a tertiary healthcare institution located in eastern Thailand. The hospital presides over approximately 6,000 deliveries annually. The participants were pregnant women making their first visit to the antenatal care clinic. Women who had experienced abnormal vaginal bleeding or were unable to be on dorsal lithotomy were excluded from the study. The data was obtained using a questionnaire, which included the participants' demographic characteristics, obstetric profile, and history of screening cervical cytology. Conventional Pap smears were taken by obstetric training residents and trained medical students attending obstetric departure. Samples were collected using an Ayre's spatula, smeared onto a glass slide and immediately fixed with 95% ethyl alcohol. All the specimens were evaluated by certified cytoscreeners/ cytotechnologists at Chonburi Hospital. The cytological results were reported based on the Bethesda classification system 2001.

Abnormal results were defined as atypical squamous/ glandular cells or more which include Atypical Squamous Cell of Undetermined Significance (ASC-US), Atypical Squamous Cell cannot exclude HSIL (ASC-H), Low-grade Squamous Intraepithelial Lesion (LSIL), High-grade Squamous Intraepithelial Lesion (HSIL), Atypical Glandular Cell Not Otherwise Specified (AGC-NOS), Atypical Glandular Cell Favor Neoplasia (AGC-FN), Adenocarcinoma In Situ (AIS), Adenocarcinoma and Squamous Cell Carcinoma (SCCA). Patients who had abnormal results were informed and referred to a gynecologic oncologist.

The statistical analysis of the data consisted of percentage, mean and standard deviation, and a Chi-square test was used to find any association between categorical variables. A $p<0.05$ was considered to be statistically significant.

Results

Four hundred and seventy-two pregnant women participated in the study. Their demographic characteristics are shown in Table 1. The age of the participants ranged from 14 to 43, with a mean of 24.28 ± 6.71 years. The majority were 21 years of age or older. They were predominantly Thai nationals (86.8%). All the specimens obtained from the participants were satisfactory for evaluation. Abnormal Pap smears were found in 21 of the 472 participants. The prevalence of abnormal Pap smears was 4.4%, nine of which were cases of ASC-US (1.9%), one of ASC-H (0.2%), six of LSIL (1.3%), and five of HSIL (1.1%). Five of the cases of ASC-US, one of ASC-H, three of LSIL and four of HSIL were in the younger than

21 age group. The organism most found in a group of NILM (negative for intraepithelial or malignancy) was Candida spp. as shown in Table 2.

Table 1. Demographic characteristics. (N = 472)

Characteristics	Number (%)
Age (mean ± SD)	62
Age < 21 yr	44
Age ≥ 21 yr	24.28 ± 6.71
Gravidity	
Multiparous	214 (50%)
Nulliparous	214 (50%)
Nationality	
Thai	409 (86.8%)
Burmese	38 (8.1%)
Cambodian	20 (4.2%)
Lao	4 (0.8%)
Gestational age	
1st trimester	120 (30.6%)
2nd trimester	222 (56.6%)
3rd trimester	50 (12.8%)
Coitarche (mean ± SD)	18.12 ± 3.77
Age < 15 yr	36 (9%)
Age ≥ 15 yr	365 (91%)

Table 2. Pap smear (conventional) results among pregnant women (N = 472) in Chonburi Hospital at different age groups.

Age (yr)	NILM*	ASC-US	ASC-H	LSIL	HSIL	Invasive	Total
< 21	160	5	1	3	4	0	173
21-30	181	4	0	1	0	0	186
31-40	106	0	0	2	1	0	109
> 40	4	0	0	0	0	0	4
Total	**451**	**9**	**1**	**6**	**5**	**0**	**472**

*Negative for intraepithelial lesion or malignancy. [Included 77 cases of Candida spp, 19 cases of Bacterial vaginosis, 9 cases of Trichomonas.]

ASC-US: Atypical Squamous Cells of Undetermined Significance, LSIL: Low grade Squamous Intraepithelial Lesion, ASC-H: Atypical Squamous Cells-cannot exclude HSIL, HSIL: High grade Squamous Intraepithelial Lesion.

Table 3 shows the results of abnormal Pap smears of women in different age groups. The prevalence of abnormal Pap smears was 2.7% (8 in 299) with 0.3% (1 in 299) of HSIL in women aged 21

or more and 7.5% (13 in 173) with 2.3% (4 in 173) of HSIL in the younger age group.

A hundred and fourty-seven of the 263 women aged 21 or more (55.9%) had never been screened for cervical cancer, and more than half of multiparous women (51.3%) had failed to be followed up after delivery.

An appointment was made for a colposcopic evaluation of five patients with HSIL, three with LSIL and one with ASC-H. One of the patients in the group with HSIL was pregnant and, since the gynecologic oncologist reported no suspicious findings suggestive of high grade lesions, she was not biopsied. The other four HSIL patients were assigned to have a postpartum colposcopic evaluation. Two of them were pathologically diagnosed to have CIN1, one had an endocervical polyp, and the other failed to be followed up. A colposcopy was done postpartum in the three cases with LSIL, and the pathological diagnosis was chronic cervicitis, CIN 1 and CIN 2. The other three patients with LSIL, who did not have a colposcopy, were given a postpartum Pap smear and the results for two of them were NILM while the other was still in the pregnancy period. Arrangements were made for the patient with ASC-H to have a postpartum colposcopic evaluation, but this was not followed up. Appointments were made for all nine patients with ASC-US to have a postpartum Pap smear. Four of them had NILM results, two were still in the pregnancy period, and three failed to be followed up.

Table 3. Prevalence of the abnormal Pap smear results among pregnant women aged < 21 and ≥ 21 years old.

Age	NILM(%)	abnormal (%)	Total
Age < 21	160 (92.5%)	13 (7.5%)	173
Age ≥ 21	291 (97.3%)	8 (2.7%)	299

p = 0.019

Discussion

In past studies the prevalence of abnormal cervical cytology in pregnancy varied from one to another. For example, Yamazaki et al reported 1.13% in Japan, 2006,[6] and in Thailand, the reported prevalence was 0.8% in 2005, 0.52% in 2008 and 7% in 2010[7-9]. The most recent study in 2010 employed a liquid-based preparation which was claimed to be more sensitive than the conventional Pap smear. Despite the several advantages of the liquid-based technique, including greater specimen adequacy and fewer unsatisfactory results, the evidence showed similar sensitivity and specificity as conventional and liquid-based cytology for the detection of CIN grade 2 or more severe diagnoses (CIN 2+). Therefore, both techniques are acceptable for screening[10,11].

This present study found that the prevalence of an abnormal Pap smear in pregnant women is much higher than in past studies that used the same conventional technique. This indicates an increasing rate of abnormal cervical cytology, which will lead to an increase in incidence of invasive cancer without an adequate screening programme. As discussed above, pregnancy provides an opportune time for screening.

Thailand is a developing country with a huge gap between people of different socio-economic status; therefore, the group of participants at Chonburi Hospital may better reflect the Thai population than previous studies conducted in a medical school hospital in the capital city.

The prevalence was observed separately using the age of 21 as the cut-off point in accordance with the ACS-ASCCP-ASCP screening guidelines that recommend the screening of women from the age of 21 regardless of the age of sexual initiation or other risk factors. The prevalence of abnormal Pap smears was 2.7% (8 in 299) with 0.3% (1 in 299) of HSIL and 7.5% (13 in 173) with 2.3% (4 in 173) of HSIL in the group aged 21 or more and the younger age group respectively. The prevalence was much higher in the younger age

group and its relationship was significant. In 2005, Sueblinvong et al[7], reported the prevalence of abnormal Pap smears in different age groups in the same manner. They found 3.6% of abnormal Pap smears among pregnant women aged below 20 and 1.7% among those aged 20-29 years. Although the younger age group was associated with a higher prevalence of abnormal cervical cytology, the evidence showed that screening adolescents leads to unnecessary evaluation, overtreatment and represents a net harm[12]. Fuchs et al[13] and Moscicki et al[14] confirmed that the regression rates of CIN 2 were high and progression rates to CIN 3 or cancer were low in adolescents. Therefore, the recommended age to start screening pregnant women may apply to the general population in the same way.

The additional benefit of cervical screening is the finding of organisms such as Trichomonas, the infection of which is associated with adverse pregnancy outcomes, particularly the premature rupture of membranes, preterm delivery, and low birth weight. This raises physicians' concern for patients' symptoms and the need for a prompt evaluation. However, Pap smears are not reliable for diagnosis and should not be misapplied[15].

The study also found that 55.9% (147 in 263) of women aged 21 years or more had never been screened for cervical cancer. 51.3% (100 in 195) of multiparous women had not attended postpartum care after delivery. Thus, screening for cervical cancer should not be delayed. Physicians should become more involved in providing screening information to their patients and managing it appropriately. If they delay screening until after delivery, they may lose a valuable opportunity.

In summary, this has been a preliminary study of cervical cancer screening for pregnant women at Chonburi Hospital. The prevalence of abnormal Pap smears in pregnant women was found to be quite high (4.4%), especially in women younger than 21 years of age (7.5%). However, the study was limited by the collection of a small sample size due to time constraints; therefore, further studies are recommended to use larger samples to confirm these results. In addition, further cost-benefit studies are needed of cervical cancer screening in pregnant women at Chonburi Hospital.

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ความชุกของเซลล์เยื่อบุผิวปากมดลูกผิดปกติในสตรีตั้งครรภ์ที่โรงพยาบาลชลบุรี

อนรรฆวรรณ อิงประสาร, นพดล อ่อนเอี่ยม

วัตถุประสงค์: *เพื่อศึกษาความชุกของเซลล์เยื่อบุผิวปากมดลูกผิดปกติในสตรีตั้งครรภ์ที่มาฝากครรภ์โรงพยาบาลชลบุรี*

วิธีดำเนินการศึกษา: *ศึกษาโดยวิธีการวิจัยเชิงพรรณนาแบบตัดขวางระหว่างเดือนมิถุนายนถึงเดือนกันยายน พ.ศ.2556 โดยตรวจคัดกรองมะเร็งปากมดลูกในสตรีตั้งครรภ์ที่มาฝากครรภ์ครั้งแรกที่โรงพยาบาลชลบุรีด้วยวิธี conventional และแปลผลตามหลักเกณฑ์ Bethesda 2001 ผลตั้งแต่ atypical squamous/ glandular cells ขึ้นไปจะถูกจัดอยู่ในกลุ่มเซลล์เยื่อบุผิวปากมดลูกผิดปกติ การศึกษานี้มีการเก็บข้อมูลพื้นฐาน ข้อมูลทางสูติกรรมและประวัติการตรวจคัดกรองของผู้เข้าร่วมการศึกษา*

ผลการศึกษา: *มีสตรีตั้งครรภ์เข้าร่วมการศึกษา 472 ราย อายุระหว่าง 14-43 ปี อายุเฉลี่ย 24 ปี ส่วนใหญ่เป็นชาวไทย (ร้อยละ 86.8) พบความชุกของภาวะเซลล์เยื่อบุผิวปากมดลูกผิดปกติในสตรีตั้งครรภ์ร้อยละ 4.4 (21 ใน 472 ราย) เมื่อจำแนกตามกลุ่มอายุ พบความชุกของเซลล์เยื่อบุผิวปากมดลูกผิดปกติในสตรีตั้งครรภ์ในกลุ่มอายุตั้งแต่ 21 ปีขึ้นไป ร้อยละ 2.7 (HSIL ร้อยละ 0.3) และในกลุ่มอายุน้อยกว่า 21 ปี พบร้อยละ 7.5 (HSIL ร้อยละ 2.3)*

สรุป: *ความชุกของเซลล์เยื่อบุผิวปากมดลูกผิดปกติในสตรีตั้งครรภ์ที่โรงพยาบาลชลบุรี พบร้อยละ 4.4*