RESEARCH ARTICLE

Comparison of Pap Smear Screening Results between Akha Hill Tribe and Urban Women in Chiang Rai Province, Thailand

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Abstract

    Cervical cancer is an important woman's health problems worldwide, especially in low socio-economic countries. The aim of this study was to compare the Pap smear screening results between Akha hill tribe and urban women who live in Chiang Rai province, Thailand. Screening was conducted for 1,100 Akha women and 1,100 urban women who came to have the Pap smear at Chiangrai Prachanukroh Hospital and 1 private cytology laboratory from January to June 2008. The demographic characteristics and factors related to abnormal Pap smears of these women were gathered using closed model questionnaires. Abnormal Pap smears were defined according to the Bethesda 2001 system. The results showed that the prevalence of abnormal Pap smears was 12.2% in Akha women and 4.5% in urban women. The highest prevalence of Pap abnormalities was found in the 41-50 years age group in both populations (4.5% in Akha and 1.7% in urban women). In both populations, abnormal Pap smears were found in <21 years age groups. From the questionnaires, the possible risk factors related to the higher prevalence of abnormal Pap smears in Akha women were early age at marriage (≤17 years), high frequency pregnacies and high parity and no/low education level. In conclusion, cervical cancer control by education and early detection by Pap smear screening is necessary for hill tribe women. More Pap smear screening service units should be set to improve the coverage for the risk group women who got married in young age, especial in ethnic groups.

Keywords: Pap smear - Akha hill tribe - precancerous lesion - Bethesda system - cervical cancer

Introduction

    Cervical cancer is the second among gynecologic cancers in all over the world and may be the first in developing countries. It has high mortality unless early diagnosis (Morris et al., 1996). In countries where active screening coverage programs have been used, a significant decrease in invasive cervical cancer incidence has been recorded (Twinn and Cheng, 1999; Idestrom et al., 2002; Lonky, 2002a; 2002b). In Thailand, Ministry of Public Health proposed the Pap smear screening of the entire population of women 5 yearly intervals in 35-60 years. However, this program can not cover some ethnic groups as Karen, Hmong (Meo), Lahu, Akha, Yao, H' tin and other hill tribes, because some of them do not obtain Thai citizenship. In addition, these ethnic groups may refuse to have Pap smear screening because of lacking knowledge, poor economic condition and/or prohibition by their religion. Akha is one of ethnic groups; the population about 6.9% of total six main ethnic groups residing in northern Thailand including Chiang Mai, Chiang Rai, Mae Hong Sorn province and others (Aguettant, 1996). Akha hill tribe has the socio-economic life and their

culture distinct from general Thai people, such as no/ low education, young aged marriage, high birth rate, religion, hygienic situation, etc. Most of them do not have knowledge about cervical cancer and Pap smear screening, so that the prevalence of abnormal Pap smear screening results of Akha hill tribe women are expected to be higher than of urban women.

    Our study aimed to compare the Pap smear screening results between Akha hill tribe and urban women who live in Chiang Rai province, Thailand.

Materials and Methods

    A cross-sectional Pap smear screening was conducted in 1,100 Akha hill tribes and 1,100 urban women who came to have Pap smear screening at Chiangrai Prachanukroh Hospital and 1 private cytology laboratory, Chiang Rai province from January to June 2008.

    Abnormal Pap smears were defined according to the Bethesda system 2001 (Solomon et al., 2002), atypical squamous cells of undetermined significance (ASC-US), atypical squamous cells cannot exclude high grade squamous intraepithelial lesion (ASC-H), atypical

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glandular cells: endocervical (AGC: endocervical), low grade squamous intraepithelial lesion (LSIL) encompassing human papillomavirus/mild dysplasia/cervical intraepithelial neoplasia I (CIN I), high grade squamous intraepithelial lesion (HSIL): CIN II, HSIL: CIN III, squamous cell carcinoma, adenocarcinoma in situ and adenocarcinoma.

Demographic characteristics and some factors related to abnormal Pap smears were gathered by closing model questionnaire. The Institutional Ethics Board at Khon Kaen University, Thailand approved this research.

Results

Demographics

The age gorup distributions of 1,100 Akha women and 1,100 urban women were shown in Table 1. The residences of these urban and Akha women are shown in Figure 1. All of the urban women reside in Mueang district; Ahka women reside in Doi Mae Fah Luang (Mae Fa Luang district), Doi Mae Salong (Mae Fa Luang district), Doi Tung (Mae Sai district) and Doi Wawee (Mae Suai district), Chiang Rai province, Thailand.

The Pap smear screening results of Akha and urban women were summarized in Table 1. The overall prevalence of abnormal Pap smear screening results in Akha women was 12.2% (134/1,100) results in urban women was only 4.5% (49/1,100). There were significant higher (p<0.05 by two proportion Z test) of ASCUS, ASC-H, LSIL-HPV and HSIL-CIN III observed in Akha women than urban women.

The highest prevalence of abnormal Pap smear screening results in both groups was found in 41-50 years age group, 49/1100 (4.5%) in Akha and 19/1100 (1.7%) in urban women. The lowest age group of the Akha and urban women that found the abnormal Pap smear screening results was <21 years age group (2/1100 and 5/1100) (Table 1).

From questionaires, characteristics of both women group were shown in Table 2. Most Akha women had no and primary school education (90.8%), whereas urban women had high school or higher education (84.9%).

Table 1. Age Group Distributions and Pap Smear Screening Results between 1,100 Akha Hill Tribe and 1,100 Urban Women

Pap smear results	<21 years		21-30 years		31-40 years		41-50 years	
	Akha	Urban	Akha	Urban	Akha	Urban	Akha	Urban
Negative	17 (1.5)	6 (0.5)	105 (9.5)	85 (7.7)	168 (15.3)	177 (16.1)	134 (12.2)	219 (19.9)
Reactive cellular change, inflammation	3 (0.3)	1 (0.1)	51 (4.6)	47 (4.3)	128 (11.6)	95 (8.6)	123 (11.2)	113 (10.3)
Bacterial vaginosis	0	2 (0.2)	1 (0.1)	9 (0.8)	6 (0.5)	28 (2.5)	8 (0.7)	32 (2.9
Candida spp.	0	1 (0.1)	0	8 (0.7)	5 (0.5)	26 (2.4)	3 (0.3)	32 (2.9)
Trichomonas spp.	1 (0.1)	0	3 (0.3)	1 (0.1)	2 (0.2)	3 (0.3)	8 (0.7)	4 (0.4)
Candida spp., bacterial vaginosis	0	0	0	0	0	4 (0.4)	0	0
Trichomonas spp., bacterial vaginosis	0	0	0	0	0	1 (0.1)	2 (0.2)	1 (0.1)
Atrophy	0	0	0	0	3 (0.3)	1 (0.1)	22 (2.0)	15 (1.4)
ASC-US	1 (0.1)	2 (0.2)	4 (0.4)	3 (0.3)	14 (1.3)	6 (0.5)	24 (2.2)	6 (0.5)
ASC-H	0	0	0	0	3 (0.3)	0	1 (0.1)	0
AGC : endocervical	0	0	1 (0.1)	1 (0.1)	4 (0.4)	2 (0.2)	12 (1.1)	7 (0.6)
LSIL, HPV	1 (0.1)	1 (0.1)	4 (0.4)	2 (0.2)	4 (0.4)	1 (0.1)	6 (0.5)	1 (0.1)
HSIL, CIN II	0	0	2 (0.2)	0	1 (0.1)	1 (0.1)	2 (0.2)	0
HSIL, CIN III	0	0	2 (0.2)	0	6 (0.5)	3 (0.3)	3 (0.3)	3 (0.3)
Squamous cell carcinoma	0	0	0	0	0	0	1 (0.1)	0
Adenocarcinoma in situ	0	0	0	0	0	0	0	1 (0.1)
Adenocarcinoma	0	0	0	0	0	0	0	1 (0.1)
Total abnormal Pap smear	2 (0.2)	3 (0.3)	13 (1.2)	6 (0.5)	32 (2.9)	13 (1.2)	49 (4.5)	19 (1.7)
Total	23 (2.1)	13 (1.2)	173 (15.7)	156 (14.2)	344 (31.3)	348 (31.6)	349 (31.7)	435 (39.5)

Pap smear results	51-60 years		>60 years		Total	
	Akha	Urban	Akha	Urban	Akha	Urban
Negative	38 (3.5)	26 (2.4)	6 (0.5)	0	468 (42.5)	513 (46.6)
Reactive cellular change, inflammation	55 (5.0)	34 (3.1)	11 (1.0)	4 (0.4)	371 (33.7)	294 (26.7)
Bacterial vaginosis	5 (0.5)	6 (0.5)	2 (0.2)	0	22 (2.0)	77 (7.0)
Candida spp.	1 (0.1)	11 (1.0)	0	0	9 (0.8)	78 (7.1)
Trichomonas spp.	0	1 (0.1)	0	0	14 (1.3)	9 (0.8)
Candida spp., bacterial vaginosis	1 (0.1)	0	0	0	1 (0.1)	4 (0.4)
Trichomonas spp., bacterial vaginosis	2 (0.2)	0	0	0	4 (0.4)	2 (0.2)
Atrophy	43 (3.9)	51 (4.6)	9 (0.8)	7 (0.6)	77 (7.0)	74 (6.7)
ASC-US	19 (1.7)	4 (0.4)	3 (0.3)	0	65 (5.9)	21 (1.9)
ASC-H	5 (0.5)	1 (0.1)	0	0	9 (0.8)	1 (0.1)
AGC : endocervical	5 (0.5)	2 (0.2)	0	0	22 (2.0)	12 (1.1)
LSIL, HPV	0	0	0	0	15 (1.4)	5 (0.5)
HSIL, CIN II	1 (0.1)	1 (0.1)	0	0	6 (0.5)	2 (0.2)
HSIL, CIN III	2 (0.2)	0	0	0	13 (1.2)	6 (0.5)
Squamous cell carcinoma	3 (0.3)	0	0	0	4 (0.4)	0
Adenocarcinoma in situ	0	0	0	0	0	1 (0.1)
Adenocarcinoma	0	0	0	0	0	1 (0.1)
Total abnormal Pap smear	35 (3.2)	8 (0.7)	3 (0.3)	0	134 (12.2)	49 (4.5)
Total	180 (16.4)	137 (12.5)	32 (2.9)	11 (1.0)	1100 (100.0)	1100 (100.0)

Table 2. Major Characteristics between Akha Hill Tribe and Urban Women

| Characteristics		Akha women No.	%	Urban women No.	%
Education levels	no	889	80.8	46	4.2
	Primary school	110	10.0	120	10.9
	High school & over	101	9.2	934	84.9
Occupation	Farmer	990	90.0	0	0.0
	Labor	110	10.0	23	2.1
	Officer	0	0.0	466	42.4
	Merchant	0	0.0	306	27.8
	Government officer	0	0.0	305	27.7
Age at first sexual intercourse (years)	14	1	0.1	0	0.0
	15	605	55.0	0	0.0
	16	281	25.5	0	0.0
	17	1	0.1	0	0.0
	≥18	212	19.3	1100	100.0
Abortion episodes (time)	no	1006	91.5	1071	97.4
	1	91	8.3	29	2.6
	2	3	0.3	0	0.0
Numbers of parities	0	0	0.0	4	0.4
	1	174	15.8	275	25.0
	2	402	36.5	790	71.8
	3	345	31.4	31	2.8
	≥ 4	179	16.3	0	0.0
Chosen contraception	Oral	496	45.1	937	85.2
	Injection	604	54.9	163	14.8
Pap smear screening history (time)	1	167	15.2	33	3.0
	2	662	60.2	140	12.7
	3	271	24.6	103	9.4
	4	0	0.0	674	61.3
	≥5	0	0.0	150	13.6
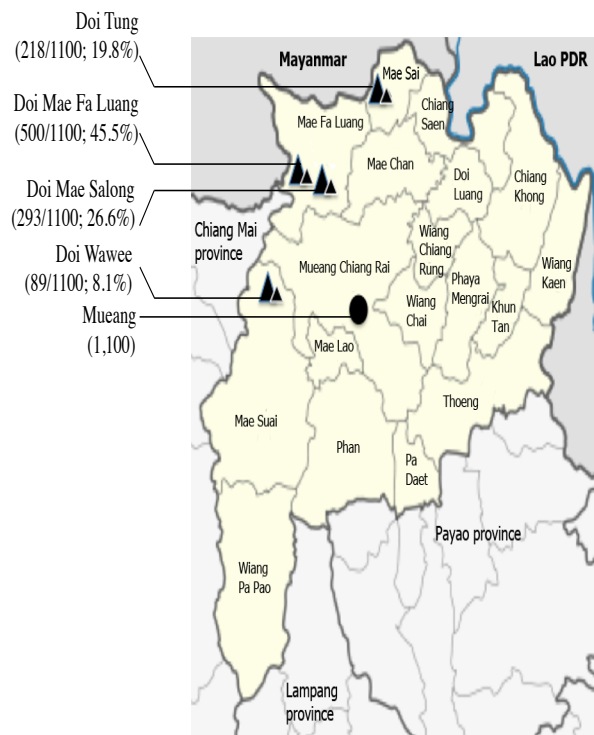
Figure 1. Residence of Urban Women was Mueang District (1,100) and Residences of Akha Women, were Doi Mae Salong (293) and Doi Mae Fa Luang (500), Mae Fa Luang District, from Doi Wawee (89), Mae Suai District and from Doi Tung (218), Mae Sai District, Chiang Rai Province, Thailand

80.7% of Akha women were having age at first sexual intercourses (AFI) between 14-17 years, whereas all urban women were higher. 47.6% of Akha women had 3 and more parities, whereas most of urban women had 2 or fewer parities. 8.3% of Akha women had abortion episode at least 1 time that was significant higher than urban women (p<0.05 by two proportion Z test). 45.1% of Akha women used oral contraception; the remainder used injected contraception, but 85.2% of urban women used oral contraception. 74.9% of urban women had 4 times or more Pap smear screening history, but most of Akha women had ≤2 times.

Discussion

Among hill tribes in Chiang Rai province, Akha women were major group who had Pap smear screened, whereas few Karen, Hmong, Lahu, Yao and others were screened.

The risk factors for precancerous lesions of cervix were grouped into genital, sexual, chemical, dietary and life factors. Human papilloma virus (HPV) infectious etiological agent associated with the development of precancerous lesions of cervix. Other important risk factors were early AFI, multiple sexual partners of male and female. Oral contraceptive usage, nutritional deficiencies and poor personal hygiene were also reported as co-risk factors (Murthy and Mathew, 2000).

The data from this study showed that Akah women had several risk factors for precancerous lesion and cervical carcinoma which differed from urban women such as early AFI. There were several studies supported that early AFI was important risk factor for these abnormal Pap smear screening. Recently, Plummer et al. (2012) reported that Odds ratios (OR) for invasive cervical cancer was approximately proportional to the square of time since first intercourse (exponent 1.95, 95%CI: 1.76-2.15) up to age 45. They found that first cervical infection with HPV often occurs soon after first sexual intercourse, so that early AFI is a reasonable proxy for young age at first exposure to HPV. Pereira et al. (2007) showed that high-risk HPV infections were strongly associated to AFI (OR=7.10) and Sauvaget et al. (2011) also showed that high-risk HPV infection was associated to AFI.

High frequently pregnancies and high parities were also risk factors among Akha women. Pereira et al. (2007) reported that HPV infection was also strongly associated to three or more parities (OR=3.05), abortion episodes (OR=4.80). Akha women had significant higher parieties (≥3) and abortion episodes than urban women. The study of Pap smear screening in Camerunian women found that there was high prevalence of precancerous lesions in early age groups (11-15 years) and found that many factors were related to this high prevalence such as young age first sexual intercourses (10-18 years), early age delivery, high frequently pregnancies (more than five pregnancies), and high parities (more than five parities) (Nkegoum et al., 2001). No or low education level might be a risk factor in Akha women as previously reported a large cohort study in India (Thulaseedharan et al., 2012), showed that no education was significantly increased risk of cervical

cancer and the study in Italy (Damiani et al., 2012) also confirmed that women with high education levels were more likely to use cancer screening. The high history of Pap smear screening in urban women revealed that urban women has more awareness or knowledge about cervical cancer and the benefit of Pap smear screening.

By these results, the cervical cancer control will be effective in these women groups by giving more knowledge about cervical cancer and the way of early detection by Pap smear screening. It should be setting more units to service Pap smear screening in order to increase the coverage in the risk group women who got married in early age/early age of first intercourse. Other ethnic groups should be encouraged to be Pap smear screened and to perceive about cervical cancer.

Acknowledgements

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