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Colposcopy Waiting Time for First-diagnosed Abnormal Cervical Cytology Patients: Experiences at Hatyai Hospital

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ABSTRACT

Objectives: To audit colposcopy waiting time for first-diagnosed abnormal cervical cytology patients at Hatyai Hospital following the standard requirements of the National Health Service Cervical Screening Program (NHSCSP) 2016.

Materials and Methods: A retrospective study was carried out for 123 first-diagnosed abnormal cervical cytology patients who attended the colposcopy clinic at Hatyai Hospital, Thailand between October 2017 and May 2018. Statistical analyses were performed.

Results: Median colposcopy waiting time at Hatyai Hospital was 11.87 days (interquartile range: 0, 14 days) which achieved the minimum requirements of NHSCSP 2016. However, 94.59% of patients with low grade lesion obtained colposcopy within 6 weeks (minimum requirement ≥ 99%) and 77.55% with high grade lesion obtained colposcopy within 2 weeks (minimum requirement ≥ 93%). The significant factor associated with below standard requirements of waiting time for colposcopy was the default rate.

Conclusion: Median colposcopy waiting time at Hatyai Hospital met the standard requirements of NHSCSP 2016 but the proportion of patients who obtained colposcopy within time failed to meet the standard requirements. Improvement in the colposcopy appointment system is essential to rectify this defect.

Keywords: appointments, schedules, cervical intraepithelial neoplasia, colposcopy.

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ระยะเวลารอคอยการตรวจด้วยกล้องขยายทางช่องคลอด ในผู้ป่วยที่ได้รับการวินิจฉัยว่ามีความผิดปกติทางเซลล์วิทยาของปากมดลูกเป็นครั้งแรก: ประสบการณ์ของโรงพยาบาลหาดใหญ่

ภรทิพย์ ทัศนานุตริยกุล, ศิชฌุพงศ์ หนูทอง

บทคัดย่อ

วัตถุประสงค์: *เพื่อทบทวนระยะเวลารอคอยการตรวจด้วยกล้องขยายทางช่องคลอด ในผู้ป่วยที่ได้รับการวินิจฉัยว่ามีความผิดปกติทางเซลล์วิทยาของปากมดลูกเป็นครั้งแรกในโรงพยาบาลหาดใหญ่ โดยอาศัยข้อกำหนดมาตรฐานของ the National Health Service Cervical Screening Program (NHSCSP) 2016.*

วัสดุและวิธีการ: *ดำเนินการวิจัยแบบเก็บข้อมูลย้อนหลังของผู้ป่วยที่ได้รับการวินิจฉัยว่ามีความผิดปกติทางเซลล์วิทยาของปากมดลูกเป็นครั้งแรก จำนวน 123 คน ที่มารับการตรวจด้วยกล้องขยายทางช่องคลอดที่โรงพยาบาลหาดใหญ่ ประเทศไทย ระหว่างเดือนตุลาคม พ.ศ.2560 ถึงเดือนพฤษภาคม พ.ศ.2561 นำข้อมูลดังกล่าวมาทำการวิเคราะห์ทางสถิติ*

ผลการวิจัย: *ค่ามัธยฐานของระยะเวลารอคอยการตรวจด้วยกล้องขยายทางช่องคลอดของผู้ป่วยที่ได้รับการวินิจฉัยว่ามีความผิดปกติทางเซลล์วิทยาของปากมดลูกเป็นครั้งแรกของโรงพยาบาลหาดใหญ่เท่ากับ 11.87 วัน (พิสัยระหว่างควอร์ไทล์: 0, 14 วัน) ซึ่งเป็นไปตามข้อกำหนดขั้นต่ำของ NHSCSP 2016 อย่างไรก็ตาม มีเพียงร้อยละ 94.59 ของผู้ป่วยที่มีความผิดปกติทางเซลล์วิทยาของปากมดลูกขั้นต่ำที่ได้รับการตรวจด้วยกล้องขยายทางช่องคลอดภายใน 6 สัปดาห์ (ข้อกำหนดขั้นต่ำอย่างน้อยร้อยละ 99) และร้อยละ 77.55 ของผู้ป่วยที่มีความผิดปกติทางเซลล์วิทยาของปากมดลูกขั้นสูงที่ได้รับการตรวจด้วยกล้องขยายทางช่องคลอดภายใน 2 สัปดาห์ (ข้อกำหนดขั้นต่ำอย่างน้อยร้อยละ 93) ปัจจัยที่มีความเกี่ยวข้องอย่างมีนัยสำคัญต่อการมีระยะเวลารอคอยการตรวจด้วยกล้องขยายทางช่องคลอดที่นานกว่าข้อกำหนด คือ อัตราการผิดนัดของผู้ป่วย*

สรุป: *ค่ามัธยฐานของระยะเวลารอคอยการตรวจด้วยกล้องขยายทางช่องคลอดของผู้ป่วยที่ได้รับการวินิจฉัยว่ามีความผิดปกติทางเซลล์วิทยาของปากมดลูกเป็นครั้งแรกของโรงพยาบาลหาดใหญ่ เป็นไปตามข้อกำหนดขั้นต่ำของ NHSCSP 2016 แต่สัดส่วนของผู้ป่วยที่ได้รับการตรวจด้วยกล้องขยายทางช่องคลอดภายในเวลาที่กำหนดไม่เป็นไปตามข้อกำหนดขั้นต่ำของ NHSCSP 2016 จึงมีความจำเป็นที่จะต้องพัฒนาระบบการนัดหมายการตรวจด้วยกล้องขยายทางช่องคลอดต่อไป*

คำสำคัญ: *การนัดหมาย, ตารางเวลา, รอยโรคก่อนมะเร็งของปากมดลูก, การตรวจด้วยกล้องขยายทางช่องคลอด*

Introduction

Cervical cancer is a serious public health's problem worldwide. It is the second most common female cancer in Thailand with 8,184 new cases recorded in 2012[1]. However, cervical cancer can be prevented by vaccination. Moreover, cervical cancer screening programs have been developed for early detection of precancerous lesions. Several methods are used to screen for cervical cancer including cervical cytology, co-testing, primary human papillomavirus (HPV) screening or visual inspection with acetic acid (VIA). Among these, cervical cytology is the most popular technique followed in Thailand.

Women with abnormal cervical cytology should undergo further investigation by colposcopy. Magnification of cervical epithelium, lower genital tract or anogenital area through colposcopy helps to detect precancerous lesions, malignancy or verify normality. In Thailand, colposcopy is usually performed by a gynecological oncologist or gynecologist who has undergone colposcopy training. Therefore, most patients with abnormal cervical cytology are referred to a tertiary care hospital for further investigations.

Lack of doctors is a serious public health problem in Thailand. Hatyai Hospital is a tertiary healthcare provider in lower-southern Thailand. Since 2013, the hospital has been the referral center from Songkhla and neighboring provinces, covering about 5 million people[2].

Waiting time for treatment may be affected by excessive patients, including waiting time for colposcopy. Periodically auditing of the colposcopy service is undertaken to improve clinical practice quality.

In Thailand, there are no standard guidelines for quality assurance in cervical cancer prevention. The National Health Service Cervical Screening Program (NHSCSP) has published guidelines regarding colposcopy and programmed management for assurance in cervical cancer prevention, including standard waiting time requirements for colposcopy[3]. To improve the referral system and colposcopy program of the study institute, the primary objective concerned investigation of colposcopy waiting time for first-diagnosed abnormal cervical cytology patients at Hatyai Hospital by using standard requirements of NHSCSP 2016. The secondary objective was to assess the factors associated with substandard requirements of NHSCSP 2016.

Materials and Methods

This study was approved by the Institutional Review Board of Hatyai Hospital. A retrospective study was performed at the colposcopy clinic of Hatyai Hospital between October 2017 and May 2018.

Sample size was calculated using the formula for descriptive studies: n = [DEFF*Np(1−p)]/ [(d2/Z21-α/2*(N−1)+p*(1−p)]. Base on study of Kietpeerakool et al[4], where DEFF=1, N=291, p=0.96, d=0.05, and Z1−α/2 = 1.96. Sample size plus 10% drop out was determined at 50.

At Hatyai Hospital, the colposcopy clinic is carried out once a week with examinations performed by a gynecological oncologist. On the first visit, patients with abnormal cervical cytology have their medical details recorded and undergo a gynecological examination by a general gynecologist before making an appointment to attend the colposcopy clinic. If patients default from their appointments, nurses at the colposcopy clinic make contact by telephone to arrange new appointments and record the reasons for default. If patients cannot be contacted or do not attend the second appointment, they are sent an advisory letter detailing the appointment process. Defaulters who fail to respond after receiving the advisory letter are classified as loss to follow-up.

Between October 2017 and May 2018, 152 women visited the colposcopy clinic. After exclusion of patients with prior diagnosis of abnormal cervical cytology, pregnancy, incomplete medical data or loss to follow-up, 123 women with first diagnosis of abnormal cervical cytology were included in the study. Demographic data and types of abnormal cervical cytology were collected from out-patient chart. Abnormal cervical cytology was categorized into 2 groups as low and high grade lesion. Low grade lesion consisted of atypical squamous cells - undetermined significance (ASC-US) and low grade squamous intraepithelial lesion (LSIL) and high grade lesion consisted of atypical squamous cells, cannot exclude high grade squamous intraepithelial lesions (ASC-H), high grade squamous intraepithelial

lesion (HSIL), invasive carcinoma, and glandular lesion (including atypical glandular cell, adenocarcinoma in situ and adenocarcinoma). Colposcopy waiting time was audited following the standard requirements of NHSCSP 2016[3]. Standard requirements for colposcopy were determined by the following criteria: (1) ≥ 99% of patients with low grade lesion should be seen within 6 weeks of referral and (2) ≥ 93% of patients with high grade lesion should be seen within 2 weeks of referral. A default rate should be less than 15%[3]. Date of receipt of referral was day 0 in all calculations.

Statistical analyses were performed using SPSS software version 17.0 (SPSS Inc., Chicago). Descriptive statistics were used to analyze demographic data. Continuous data were presented with mean ± standard deviation (SD) and median (interquartile quartile (IQR)) as appropriate. Discrete data were analyzed with Fisher's exact test. For all analyses, p value < 0.05 was considered statistically significant.

Results

Among the 123 first-diagnosed abnormal cervical cytology patients, mean age was 40.17±11.25 years, with HIV infected patients at 14.63%. Three-quarters of the patients lived in Songkhla Province and 57.72% were referred from other hospitals. More than 95% had universal health coverage or health insurance. The default rate was 17.89% (Table 1).

Table 1. Demographic data of first-diagnosed abnormal cervical cytology patients.

Characteristic	N (%)
Age (years)	40.17 ± 11.25
Residency	
Songkhla	96 (78.05)
Other provinces	27 (21.95)
Education	
Primary	35 (28.46)
Secondary or higher	88 (71.54)
Health insurance	
Yes	119 (96.75)
No	4 (3.25)
Religion	
Buddhism	103 (83.74)
Islam	20 (16.36)
Marital status	
Single	13 (10.57)
Married	110 (89.43)
Previous pregnancy	
Yes	99 (80.49)
No	24 (19.51)
HIV infection	
Yes	18 (14.63)
No	105 (85.37)
Referred case	
Yes	71(57.72%)
No	52 (42.28%)
Default	
Yes	22(17.89%)
No	101(82.11%)

Values are given as mean ± standard deviation and number (%).

All 123 patients were examined by conventional cervical cytology. Abnormal cervical cytology consisted of ASC-US 40 (32.52%), LSIL 34 (27.64 %), HSIL17 (13.82%), ASC-H 10 (8.13%), glandular lesion 14 (11.38%) and invasive carcinoma 8 (6.50%).

Median colposcopy waiting time of first-diagnosed abnormal cervical cytology patients at Hatyai Hospital was 11.87 days (IQR: 0, 14 days). Colposcopy waiting time for the low grade lesion group was 6 days (IQR: 0, 13.25 days) and 11 days (IQR: 4, 14 days) for the high grade lesion group. Colposcopy waiting time was further classified by the standard requirements of NHSCSP 2016. The results are shown in Table 2.

Table 2. Colposcopy waiting time for first-diagnosed abnormal cervical cytology patients classified by standard requirements of NHSCSP 2016.

Category	Results		Waiting time (days)		Standard requirement
	Standard	Substandard	Standard	Substandard	
Low grade lesion* (N=74)	70 (94.59)	4 (5.41)	6 (0, 11)	104 (66, 121.75)	≥ 99%
High grade lesion[ฮ] (N=49)	38 (77.55)	11 (22.45)	7 (0.75,11.25)	20 (17, 25)	≥ 93%

Values are given as number (%) and median (interquartile quartile),

NHSCSP: National Health Service Cervical Screening Program

* Standard requirement: woman with atypical squamous cells - undetermined significance (ASC-US) and low grade squamous intraepithelial lesion (LSIL) should be seen within 6 weeks of referral.

[†] Standard requirement: woman with atypical squamous cells, cannot exclude high grade squamous intraepithelial lesions (ASC-H), high grade squamous intraepithelial lesion (HSIL), glandular lesion and invasive carcinoma should be seen within 2 weeks of referral.

Table 3 shows the relationship between various factors and colposcopy waiting time for first-diagnosed abnormal cervical cytology patients. There was no statistical significance in the relationship between demographic factors and substandard requirements of NHSCSP 2016 except for the default rate ($p < 0.01$).

Reasons for not attending colposcopy appointments given by the 22 defaulting patients (17.89%) included appointment date met the menstrual cycle in 9 patients (40.91%), lack of health insurance in 3 patients (13.64%) and unknown causes (45.45%).

Discussion

Achieving appropriate times for colposcopy appointments is important for early diagnosis and treatment of precancerous cervical lesions. In Thailand, there are no standard guidelines for quality assurance in cervical cancer prevention. Here, standard requirements of NHSCSP 2016 were used to evaluate the quality of colposcopy treatment at Hatyai Hospital.

Standard requirements of NSHCSP 2016 state that at least 93% of patients with high grade lesion should be seen at a colposcopy clinic within 2 weeks. For low grade lesion, at least 99% of patients should be seen at a colposcopy clinic within 6 weeks[(3)]. Median colposcopy waiting time for first-diagnosed abnormal cervical cytology patients at Hatyai Hospital was 11.87 days (IQR: 0, 14 days). An overview of colposcopy waiting time recorded here concurred with NSHCSP 2016 requirements. However, the proportion of patients with abnormal cervical cytology failed to meet NSHCSP 2016 requirements. Only 77.55% and 94.59% of patients with high and low grade lesion were offered colposcopy appointments within 2 and 6 weeks, respectively.

Table 3. Factors associated with substandard requirements of the NHSCSP 2016.

Demographic	Low grade			High grade		
	N (%)			N (%)		
	Standard (N=70)	Substandard (N=4)	p value	Standard (N=38)	Substandard (N=11)	p value
Residency	56 (80.00)	3 (75.00)	1.00	27 (71.05)	10 (90.91)	0.25
Songkhla	14 (20.00)	1 (25.00)		11 (28.95)	1 (9.09)	
Other provinces						
Education						
Primary school	19 (27.14)	2 (50.00)	0.32	13 (34.21)	1 (9.09)	0.14
Secondary school	51 (72.86)	2 (50.00)		25 (65.79)	10 (90.91)	
Health insurance						
Yes	67 (95.71)	4 (100.00)	1.00	37 (97.37)	11 (100.00)	1.00
No	3 (4.29)	0 (0.0)		1 (2.63)	0 (0.00)	
Religion						
Buddhism	62 (88.57)	3 (75.00)	0.41	29 (76.32)	9 (81.82)	1.00
Islam	8 (11.43)	1 (25.00)		9 (23.68)	2 (18.18)	
Marital status						
Single	6 (8.57)	0 (0.00)	1.00	4 (10.53)	3 (27.27)	0.18
Married	64 (91.43)	4 (100.00)		34 (89.47)	8 (72.73)	
Previous pregnancy						
Yes	57 (81.43)	4 (100.00)	1.00	31 (81.58)	7 (63.64)	0.24
No	13 (18.57)	0 (0.00)		7 (18.42)	4 (36.36)	
HIV infection						
Positive	14 (20.00)	0 (0.00)	1.00	2 (5.26)	2 (18.18)	0.21
Negative	56 (80.00)	4 (100.00)		36 (94.74)	9 (81.82)	
Referral case						
Yes	37 (52.86)	3 (75.00)	0.62	24 (63.16)	7 (63.64)	1.00
No	33 (47.14)	1 (25.00)		14 (36.84)	4 (36.36)	
Default						
Yes	9 (12.86)	2 (50.00)	0.10	3 (7.89)	8 (72.72)	< 0.001
No	61 (87.14)	2 (50.00)		35 (92.11)	3 (27.27)	

Values are given as mean ± standard deviation and number (%).
NHSCSP: National Health Service Cervical Screening Program

Results showed that default rate at 17.89% was a significant factor associated with substandard requirements of NSHCSP 2016, higher than the minimal requirements of less than 15%[3]. Regarding other literature concerning Thailand, Kietpeerakool et al reported 15.8%[4] which concurred with our findings. Many reasons may be affiliated with default from colposcopy appointments. An appointment date that meets the menstrual cycle was determined as a major problem, followed by lack of health insurance. Other factors previously reported include human immunodeficiency virus infection, long waiting time

for colposcopy, younger age, not in paid employment, smoking, lack of post-school education, and not worried about having cervical cancer[4, 5].

Non-attendance of patients at colposcopy clinic is a complex problem[6]. Many background differences and various reported factors influence default of colposcopy appointments[7-9]. Here, several factors were identified as associated with default of colposcopy clinic appointments. Recent research has suggested strategies to reduce non-attendance of patients at colposcopy clinic including direct booking (short circuit to colposcopy by allowing patients direct appointments)[10], precolposcopy information with discussions to improve knowledge concerning colposcopy[11], and telephone reminders for appointment dates[12]. Interestingly, Balasubramani et al reported that intention of patients was a predictive factor for colposcopy attendance[13]. Improvement of knowledge regarding the importance of colposcopy is the key to successful management of colposcopy clinic. Moreover, changing conventional methods to liquid-based cervical cytology may help to decrease colposcopy waiting time. Physicians can use reflex HPV deoxyribonucleic acid (DNA) testing to triage negative-HPV DNA from positive-HPV patients. Only positive-HPV DNA patients require further investigation with colposcopy. This strategy may reduce unnecessary colposcopy and waiting time.

This research presented the first investigation at a regional hospital operated by the Ministry of Public Health, Thailand. One limitation was the single center study with small sample size. A multicenter study will provide a more detailed perspective of the situation throughout the country. Factors associated with default of colposcopy clinic appointments were not specifically investigated. Further research is required for a more comprehensive understanding of colposcopy treatment processes.

Conclusion

Median colposcopy waiting time at Hatyai Hospital met the standard requirements of NHSCSP 2016 but the proportion of patients who underwent colposcopy within specified time periods failed to meet the standard requirements. Improvements in the colposcopy appointment system are urgently required.

Potential conflicts of interest

The authors declare no conflict of interest.

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