Original Article

Surveillance after Treatment for Cervical Cancer Patients: Survey of Practice among Thai Gynecologic Oncologists

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Objective: To elucidate the current surveillance practice of Thai gynecologic oncologists for cervical cancer survivors.

Materials and Methods: The present study was a part of a national survey of the Thai Gynecologic Cancer Society on gynecologic cancer management practice among Thai gynecologic oncologists. The questionnaire included various aspects of gynecologic cancer management. The responses via an electronic online from August to October, 2019 were collected. Data on surveillance practice for cervical cancer patients were abstracted.

Results: Of 170 gynecologic oncologists, 71.2% reported more than 10 years of post-treatment surveillance for their cervical cancer patients. Only 20% of the respondents performed only physical examination whereas the majority also had cervical/vaginal cytologic testing in every patient (91.8%) or one or more of imaging study to aid in the diagnosis of recurrence (80%). The imaging study included chest x-ray (71.8%), CT whole abdomen (37.1%), and PET-CT (1.8%). No differences in surveillance practice among the respondents' hospital features and duration of practice.

Conclusion: Most Thai gynecologic oncologists used clinical examination with cervical/vaginal cytology for surveillance on cervical cancer survivors. The majority also requested a chest x-ray and less with a CT scan of the whole abdomen. Working features had no impact on surveillance practice.

Keywords: Cervical cancer, Surveillance, Cervical cytology, Practice, Survey

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Cervical cancer is the 4th most common malignancy and is also the 4th leading cause of cancer-related death in women worldwide, with estimated 570,000 new cases and 311,000 deaths in 2018[1]. In Thailand, cervical cancer is the 2nd most common female malignancy after breast cancer, with an age-standardized rate (ASR) of 16 per 100,000 women per year with estimated 8,622 new cases and 5,015 deaths in 2018[1].

Management for invasive cervical cancer includes surgery, radiotherapy, chemotherapy, or combination[2]. An option of treatment is based mainly on the International Federation of Gynecology and Obstetrics (FIGO) stage of disease as well as the patient's age and general health. Cure from diseases can be achieved at a high rate with early-stage disease (stage I-IIA) and lower with locally advanced (stage IIB-IVA) or advanced stages (stage IVB). However, 10 to 20% of the patients may have a recurrence of cancer after completion of treatment with either surgical or radiation therapy[3]. Timely detection of recurrence, especially those with limited diseases, may improve the survival of the patients[4].

Most recurrences were typically identified within the first 2 years after completion of treatment: 50% within 1 year and 75% within 2 years[3]. Hence, periodic surveillance after treatment was recommended at different intervals: every 2 to 3 months for the first 2 years, every 6 months for the following 3 years, and annually thereafter for life[3]. The exception was the patients with stage IA disease who could return to the routine screening program for her age after 5 years of a close follow-up[5,6].

Physical examination is essential during each follow-up visit, with cervical/vaginal cytologic testing annually[7]. Radiological imaging studies i.e. chest radiography (CXR), computed tomography scan (CT-scan), or positron emission tomography-CT (PET-CT) is recommended whenever clinically indicated.

The surveillance may help detect recurrences

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especially in the patients who had no symptoms which were reported ranging from 29% to 71%[5]. Detection rates of recurrences with the use of laboratory investigations varied: 0 to 17% for cervical/vaginal cytology, 20 to 47% for CXR, and 0 to 34% for CT scan[5]. The role of cytology was further questioned especially in post-radiotherapy patients[8].

The questionable value of each method used during surveillance may lead to variation in surveillance practice. Furthermore, each country or region may modify guidelines to fit with their availability of resources. This national survey study by the Thai Gynecologic Cancer Society (TGCS) aimed to assess the insights and practice of the Thai gynecologic oncologists on surveillance for cervical cancer survivors.

Materials and Methods

This cross-sectional survey study was conducted by the TGCS in 2019. The survey evaluated the practice of Thai gynecologic oncologists regarding their management for cervical, ovarian, and uterine cancers. The questionnaire included several questions in various aspects of cancer care. An approval from the Ethics Committees for Human Research of each collaborating institution was obtained (Rajavithi Hospital, 104/2562; COAs/IRBs: Faculty of Medicine Vajira Hospital, 097/2562).

A detailed description of inclusion/exclusion criteria, as well as materials and methods, were presented in the main report of the survey[9]. In brief, the Thai gynecologic oncologists who had been in practice for at least 1 year were invited to participate in the study during the annual scientific meeting and with a solicited message on the society website (http://www.tgcsthai.com/). The electronic questionnaire was available for responses from August to October, 2019 via https://forms.gle/e1WsBLcX5jVsXVgG8.

This study obtained data involving the surveillance practice of cervical cancer patients after treatment. Data on surveillance practice including duration of surveillance in cervical cancer survivors and methods including the type of imaging study used for the surveillance were analyzed. The question of imaging study during surveillance allowed respondents to select one or more techniques of chest x-ray (CXR), CT whole abdomen, PET-CT, other imaging studies, or clinical examination only. The association between working features of the respondents including hospital features (government vs. private, secondary- or tertiary-level, gynecologic oncology fellowship training or service only) and year of practice/experience (< or ≥5 years) and the respondents' surveillance practice were also studied.

Data were analyzed using SPSS statistical software, version 22 (IBM Corporation, Armonk, NY, USA). Descriptive statistics were summarized as numbers with percentages, mean with standard deviation (SD) or median with range, when appropriate. Chi-square or Fisher exact tests were used to compare data between groups as appropriate. The *p*-value <0.05 was considered significant.

Results

Among 305 gynecologic oncologists registered in database of the TGCS, 47 were excluded for a few reasons. Details of exclusion were described in the main report regarding general data of the respondents[9]. In brief, 170 out of 258 gynecologic oncologists (65.9%) who met inclusion criteria responded to the questionnaire. Their mean age was 41.1±8.25 years. The vast majority (over 80%) worked in government or tertiary-level hospitals. Median time of work or experience was 5 years (range 1 to 42 years).

The surveillance practice of the respondents including the duration of the follow-up period and cervical/vaginal cytologic testing are shown in Table 1. Of 170 respondents, 121 (71.2%) reported that they followed-up their patients longer than 10 years after treatment. Cervical/vaginal cytologic testing by Pap smear was reported to be performed routinely as high as 91.8% of the respondents, whereas the remaining respondents performed Pap smear only in the patients undergoing surgical treatment.

Regarding the use of diagnostic imaging during surveillance, most respondents (71.8%) requested CXR and 37.1% for CT whole abdomen. To be noted, as many as 34 respondents (20.0%) performed only clinical examination and requested imaging study only when clinically indicated (Table 2).

Among 122 respondents who requested CXR, 72 (59.0%) did not request other imaging studies. The remaining 50 respondents (41.0%) also requested CT scan of the whole abdomen. Of note, one of three respondents who used PET-CT did not consider any other imaging study for surveillance, whereas two used PET-CT as an adjunct to CXR and CT scan of the whole abdomen.

The association between the working features of

Table 1. Surveillance practice for cervical cancer survivors (n = 170)

Surveillance practice	n (%)
Duration of surveillance after treatment	
5 years	27 (15.9)
10 years	22 (12.9)
More than 10 years	121 (71.2)
Cervical/vaginal cytologic testing	
Every case	156 (91.8)
Selected case	14 (8.2)

Table 2. Imaging study used for surveillance on cervical cancer survivors (n = 170)

Imaging study	n (%)
None	34 (20.0)
Chest x-ray	122 (71.8)
CT whole abdomen	63 (37.1)
PET/CT	3 (1.8)
Ultrasound whole abdomen	2 (1.2)

One respondent may select one or more imaging study

Table 3. The pattern of surveillance for cervical cancer patients by working features

Clinical setting	Duration of surveillance			Cervical/vaginal cytologic testing			Use of imaging study		
	≤10 year	>10 years	*p*-value	All cases	Selected	*p*-value	Clinical only	Imaging study*	*p*-value
Hospital setting			0.513			0.639			0.319
Government, n = 152	45 (29.6)	107 (77.4)		140 (92.1)	12 (7.9)		32 (21.1)	120 (78.9)	
Private, n = 18	4 (22.2)	14 (77.8)		16 (88.9)	2 (11.1)		2 (11.1)	16 (88.9)	
Level of hospital			0.671			0.326			0.836
Secondary, n = 28	9 (32.1)	19 (67.9)		27 (96.4)	1 (3.6)		6 (21.4)	22 (78.6)	
Tertiary, n = 142	40 (28.9)	102 (71.8)		129 (90.8)	13 (9.2)		28 (19.7)	114 (80.3)	
Type of hospital			0.454			0.546			0.145
Training, n = 86	27 (31.4)	59 (68.6)		80 (93.0)	6 (7.0)		21 (24.4)	65 (75.6)	
Service, n = 84	22 (26.2)	62 (73.8)		76 (90.5)	8 (6.5)		13 (15.5)	71 (84.5)	
Years of practice			0.125			0.931			0.276
<5 years, n = 71	16 (22.5)	55 (77.5)		65 (91.5)	6 (8.5)		17 (23.9)	54 (76.1)	
≥5 years, n = 99	33 (33.3)	66 (66.7)		91 (91.9)	8 (8.1)		17 (17.2)	82 (82.8)	
Total	49 (28.8)	121 (71.2)		156 (91.8)	14 (8.2)		34 (20.0)	136 (80.0)	

* Imaging study included chest x-ray and other imaging studies

Thai gynecologic oncologists and surveillance practice is displayed in Table 3. Although the respondents who worked in the private or service-only hospitals requested more imaging study, the differences were not statistically significant. The other hospital features and experience of the respondents were associated with any surveillance practices regarding the duration of surveillance, cervical/vaginal cytologic testing, or the use of imaging study (Table 3). Of note, all three respondents who used PET-CT scan worked in private hospitals.

Discussion

This study represented the practice of Thai gynecologic oncologists on their surveillance in cervical cancer patients after treatment. Various patterns of methods or modalities used during the surveillance were demonstrated. The variations included duration of follow-up, use of cervical/vaginal cytologic testing, and type of imaging study.

In general, the goal of surveillance in cancer survivors is to detect early the recurrence of disease[4]. However, surveillance programs may not improve the clinical outcome of cervical cancer patients who experienced recurrences[10]. Furthermore, recommended surveillance modalities may not be readily available in low-resource settings where cervical cancer is prevalent. Nevertheless, many international organizations including Society of Gynecologic Oncology (SGO)[3], European Society for Medical Oncology (ESMO)[11], and FIGO[6] have released recommendations for post-treatment surveillance in cancer survivors aiming to detect recurrences in a timely fashion and improving quality of life. Regarding the duration of surveillance, the majority of the respondents in this study reported a follow-up period of over 10 years. This was consistently found among respondents regardless of their working features. This finding might lie on a traditional belief of the respondents based on the previous general recommendation for cervical cancer patients without tailoring an individual's risk[3,11]. Although the current FIGO's recommendation has shortened, the surveillance period in those with early-stage IA, a particular question in the questionnaire of this study, did not specify the stage or risk group of the patients leading to a response of the respondents' practice in general.

Most respondents performed cervical/vaginal cytology as a routine surveillance method. This practice, however, did not comply with available data which indicated a limited clinical benefit of this cytologic testing due to its low detection rate and low sensitivity. One literature review reported only 0 to 17% detection of recurrences from cervical/vaginal cytology[5]. Two previous studies from Thailand and Duke University Medical Center also reported 1.3% and 13% sensitivity of cytology respectively[12,13]. This cytologic testing is especially not recommended for cancer survivors who had been treated with radiotherapy because of the compromised accuracy of cytologic interpretation by radiation-effect of tissue[7]. Nevertheless, one report involving 146 recurrent cervical cancer patients who had been treated with radiotherapy demonstrated the benefit of cervical

cytology. The survival of patients whose recurrences were discovered by cytology was longer than those presented with symptoms[14]. The inconsistent data about a clinical benefit of cytologic testing added to the low cost, ease, and convenience of the procedure, which could be done along with pelvic examination, were possible reasons regarding that most respondents in this survey still performed the cytologic testing. One finding that the gynecologic oncologists should recognize is that most abnormal cytology during surveillance (which ranged from 6 to 34%) were atypical squamous cells of undetermined significance (ASC-US)[13]. This equivocal cytology might lead to further colposcopy which would not be cost-effective. Thus, some authors recommended that colposcopy should be performed only if the cervical cytology report was high grade[15].

Imaging study could detect recurrent cervical cancer, ranging from 20 to 47% for CXR and 0 to 34% for CT scan[5]. The respondents in this study used CXR as the most common imaging study (71.8%) followed by a CT scan (37.1%). This practice may lie on their wide availability in all (for CXR) or most hospitals (for CT scan in particular). Furthermore, the previous study found that patients with recurrent disease detected by CXR had longer survival than patients with symptoms of recurrence[14].

Surprisingly, this survey found as high as 20% of the respondents performed only complete physical examination during surveillance. The respondents in this group may be reluctant to proceed with special testing or investigation in the absence of signs or symptoms. This practice was supported by findings from Duke University Medical Center that the sensitivity of pelvic or general physical was as high as 58% and increased to 71% with the presence of suspicious symptoms[13].

Although this study did not find any statistically significant associations between the post-treatment surveillance patterns and the feature of the working place and experience of the respondents, there were some clinical variations. These data may reflect a real clinical situation of medical or non-medical factors which were beyond the scope of this survey study e.g. primary stage of disease, prior treatment, degrees of suspicion, availability of resources, patient's health coverage or reimbursement system especially when some were referred from their primary care units to the referral centers of the respondents, etc.

Some limitations from this study are worthy of note. The rationale of their specific practice 'to do' or 'not to do' any test was not detailed in the survey questionnaire. For example, the frequency of each test was neither collected i.e. cervical/vaginal cytological testing in each stage or after specific treatment (surgery or radiation), CXR nor other imaging study when there were no suspicious symptoms or lesions from clinical examination, etc. Further study may focus on the issue which was considered as major deviation from the standard.

Conclusion

This study reported the pattern of surveillance practice of Thai gynecologic oncologists for the cervical cancer survivor. The results of this study should be proposed to the national policy makers to improve the Thailand healthcare system on a surveillance modality. Further study of cost-analysis for surveillance equipment and schedules should be analyzed.

What is already known on this topic?

The surveillance for cervical cancer patients is a crucial process for the detection of recurrent disease after complete treatment. However, there is no consensus of guidelines for practice that yields optimal and ultimate survival outcomes during the surveillance period, whether it should be an only clinical examination or combined with cervical/vaginal cytology, or imaging study. Data about the surveillance practice for cervical cancer survivors among Thai gynecologic oncologists are limited.

What this study adds?

This present study demonstrated some variations of clinical surveillance among gynecologic oncologists in Thailand. There was no association between the hospital settings and the duration of work or experience of the Thai gynecologic oncologists and their surveillance practices.

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Potential conflicts of interest

The authors declare no conflicts of interest.

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การตรวจติดตามผู้ป่วยมะเร็งปากมดลูกหลังการรักษา: การสำรวจแนวปฏิบัติของแพทย์มะเร็งนรีเวชไทย

จิติมา ติยายน, ศรัญญา ชาญพานิชกิจโชติ, จิตติ หาญประเสริฐพงษ์, วุฒินันท์ อัจฉริยะโพธา, ศิริวรรณ ตั้งจิตกมล, สมาคมมะเร็งนรีเวชไทย

วัตถุประสงค์: เพื่อสำรวจแนวปฏิบัติของการตรวจติดตามผู้ป่วยมะเร็งปากมดลูกหลังการรักษาของแพทย์มะเร็งนรีเวชไทย

วัสดุและวิธีการ: การศึกษานี้เป็นส่วนหนึ่งของการสำรวจระดับชาติของสมาคมมะเร็งนรีเวชไทยเกี่ยวกับการดูแลมะเร็งนรีเวช แบบสอบถามประกอบไปด้วยคำถามที่เกี่ยวกับการดูแลโรคมะเร็งนรีเวชในหลายแง่มุม โดยทำการรวบรวมข้อมูลจากแบบสอบถามที่เปิดให้ตอบทางระบบอิเล็คโทรนิกส์ออนไลน์ตั้งแต่ เดือนสิงหาคม ถึง เดือนตุลาคม พ.ศ. 2562 รวบรวมข้อมูลที่เกี่ยวกับการตรวจติดตามผู้ป่วยมะเร็งปากมดลูกและวิธีการที่ใช้

ผลการศึกษา: จากแพทย์มะเร็งนรีเวช 170 ราย มี ร้อยละ 71.2 ที่รายงานว่าทำการตรวจติดตามผู้ป่วยมะเร็งปากมดลูกหลังการรักษาไปนานมากกว่า 10 ปี คิดเป็นโดยร้อยละ 20 ของผู้ตอบแบบสอบถามใช้เพียงการตรวจร่างกายเท่านั้นในการตรวจติดตาม ในขณะที่ส่วนใหญ่ทำการตรวจเซลล์วิทยาของปากมดลูกหรือช่องคลอดในผู้ป่วยทุกราย (ร้อยละ 91.8) และใช้วิธีการตรวจทางรังสีอย่างใดอย่างหนึ่งเพื่อช่วยในการวินิจฉัยการกลับเป็นซ้ำของโรค (ร้อยละ 80) วิธีการตรวจทางรังสีที่เลือกใช้ ได้แก่ การถ่ายภาพเอกซเรย์ทรวงอก (ร้อยละ 71.8) การถ่ายภาพรังสีคอมพิวเตอร์ของช่องท้อง (ร้อยละ 37.1) และ การตรวจเพท-ซีที (ร้อยละ 1.8) ไม่พบความแตกต่างกันของแนวปฏิบัติในการตรวจติดตามระหว่างผู้ตอบแบบสอบถามที่ทำงานในโรงพยาบาลต่างๆ และระยะเวลาในการทำงาน

สรุป: ส่วนใหญ่ของผู้ตอบแบบสอบถามติดตามผู้ป่วยมะเร็งปากมดลูกหลังการรักษาด้วยการตรวจร่างกายทางคลินิกร่วมกับการตรวจเซลล์วิทยาของปากมดลูกหรือช่องคลอด ส่วนใหญ่ส่งตรวจการถ่ายภาพเอกซเรย์ทรวงอก และน้อยกว่าที่จะส่งการถ่ายภาพรังสีคอมพิวเตอร์ของช่องท้อง ลักษณะของสถานที่ทำงานของผู้ตอบแบบสอบถามไม่มีผลต่อแนวปฏิบัติในการตรวจติดตาม