

RESEARCH ARTICLE

Quality of Life in Cervical Cancer Survivors and Healthy Women: Thai Urban Population Study

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Abstract

Background : To determine a baseline quality of life (QoL) in cervical cancer survivors compared to that of healthy subjects in the tertiary Thammasat University Hospital, Thailand. **Materials and Methods:** The investigation was conducted at the outpatient gynecological department of Thammasat University Hospital between January and June 2016. A total of 192 women were entered into the study (97 cervical cancer survivors; 37 after radical hysterectomy (RH), 43 with concurrent chemoradiation (CRT), and 17 featuring both RH and CRT; and 95 control subjects from the same outpatient department with no history of malignancy). Participant QoL was assessed using a Thai version of the EORTC-QLQ-C30 (European Organization for Research Treatment of Cancer Quality-of-Life) and a general survey for the assessment of sociodemographic data was also conducted. **Results:** There were significant differences in physical, role, emotional and social functions between cervical cancer survivor and control groups. Global health, fatigue, pain, appetite loss, and financial difficulties also demonstrated statistically significant variation. Cervical cancer survivors treated by RH had higher scores for emotional and social function and global health than the control group. Moreover, they had less appetite loss, fatigue and financial difficulties. However, patients treated with CRT experienced more pain than the control group. All cervical cancer survivors had lower physical function scores than the control group. **Conclusion:** Quality of life in cervical cancer survivors is better than in healthy peers in some domains. Cervical cancer survivors treated with RH may have a better QoL than healthy peers. Early detection for early stage cervical cancer remains most important because treatment in early stages does not cause lowering of the QoL.

Keywords: Cervical cancer- quality of life- radical hysterectomy- concurrent chemoradiation

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Introduction

There were an estimated 527,600 new cervical cancer cases and 265,700 deaths worldwide in 2012. It is the second most commonly diagnosed cancer and third leading

cause of cancer death among females in less developed countries (Torre LA et al., 2015). There are many treatments for cervical carcinoma, namely surgery (radical hysterectomy), chemotherapy and radiotherapy. Choice of treatment would be decided by attending physicians based on clinical cancer staging. Cervical carcinoma patients have both physical illness and many emotional issues. They reported anxiety, grief, anger and stress from progressive of disease, chronic treatment and follow up that cause psychological problems (Li CC et al., 2015; Endarti D et al., 2015; Khalil J et al., 2015). The survivors believed they were sick and were not contributing members of their communities. They often lost their self-esteem result

in suicidal attempt and loss of willingness for further treatment (Li CC et al., 2015).

Since, cervical carcinoma causes problems in many dimensions of life, therefore physical, psychological, social and spiritual problems of the patients should be considered before any treatments are given. Good treatments should cover all of the patients' problems for good compliance and good prognosis for patients.

Many literatures discussed quality of life (QoL) evaluation in cervical carcinoma survivors (Caixeta GA et al., 2014; Lee Y et al., 2016). Many different questionnaires were used in different studies. The European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire Core 30 (QLQ-C30) was developed by EORTC Quality of Life (QoL) Group (QLG) for assess the quality of life of cancer patients. A first generation of the core questionnaire, the EORTC Core 36 (EORTC QLQ-C36) was developed in 1987 (Aaronson NK et al., 1993). A few subsequent versions of the core

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questionnaire were later developed. EORTC QLQ-C30 (version 3.0) is the most recent version. It has been in use since December 1997. EORTC QLQ-C30 was translated and validated into 81 different languages and was used in more than 3,000 studies worldwide (EORTC Quality of Life Department.). However, EORTC QLQ-30 was not supplemented by disease-specific modules. Other questionnaires, namely FACT-Cx and EORTC QLQ-Cx 24, were then developed to fill in the void. Some studies shown that there were differences in QoL between healthy population and cervical carcinoma patients (Khalil J et al., 2015; Swangvaree S and Kosiyatrasul T., 2010). Some researches indicated otherwise (Caixeta GA et al., 2014; Lee Y et al., 2016; Le Borgne G et al., 2013). The study of different choice of cancer treatments did not reach a conclusion whether QoL of patients were similar or not (Osann K et al., 2014; Bjelic-Radisic V et al., 2012).

The QoL and mental health (MH) assessment in women who were treated for cervical carcinoma, namely to differentiate causes that impacted QoL in individual patients.

The purpose of this study is to get a base line QoL in cervical cancer survivors compared to that of healthy subjects in our tertiary Thammasat University Hospital. Any immersing point of view would be discussed.

Materials and Methods

The investigation was conducted at Thammasat University Hospital between January to June 2016. Total of 192 women met the criteria of the study and were interviewed, Ninety seven women had been treated by radical hysterectomy (n=37), concurrent chemoradiation (n=43) and radical hysterectomy with concurrent chemoradiation (n=17). Ninety five women from outpatient gynecological department, who had no malignancy history were interviewed. In control group, we chose from those who had routine pelvic examination without specific complain, no suspicious for malignancy or no seriously medical conditions.

The inclusion criteria were 1) history of treatment cervical carcinoma between 1996 and 2015 with no evidence of other malignancies 2) age between 30 and 70 year old 3) Thai nationality 4) agreement to participate in the study by signing informed consent.

The exclusion criteria were 1) disagreement to

participate in the study 2) language barrier 3) severe medical condition, for example severe heart disease and stroke 4) severe psychological disease such as major depressive disease, anxiety disease or illegal drug used 5) nursing home residence.

Sample size was assessed base on Kimlin's work (Ashing-Giwa KT et al., 2010). According to this power analysis, 95 participants were needed in each group. Out of 123 women treated for cervical carcinoma from outpatient gynecological department, Thammasat University Hospital, 27 were not local residences and could not be reached. Two had died. The remaining 97 women were invited to participate in the study. Those that come to visit the hospital filled in the questionnaire themselves. Some required a phone in interview session.

The research protocol was approved by Human Research Ethics Committee of Thammasat University NO.1 (MTU-EC-OB-2-173/58). Both study and control groups received their anticipated diagnosis and treatments.

Participants' QoL was measured using Thai version of EORTC-QLQ-C30. The questionnaire incorporated five functional scales (physical, role, cognitive, emotional, and social functions), three symptom scales (fatigue, pain, nausea and vomiting), a global health status, and a number of single items assessing additional symptoms (dyspnea, loss of appetite, insomnia, constipation and diarrhea) and perceived financial impact of the disease.

The demographic data and disease characteristics were assessed by author-developed demographic-clinical questionnaire. They are filled by participants or structural interviewer based on the conversation with participants. The demographic characteristic included age, underlying disease, marital status, children, occupation, income, education and family history of cancer. The disease characteristic included age at time of treatment, stage of cervical carcinoma, and time elapsed since treatment.

Statistical analysis was performed using SPSS, version 17 (SPSS Inc., Chicago, USA). Chronological variable were expressed as mean and standard deviation. Quantitative score (EORTC-QLQ-C30) were reported as mean and standard deviation. All of scales and single-item measured ranging from 0-100. High score for a functional scale represented a high level for functioning. A high score for the global health status represented a high QoL. Conversely, high score for a symptom scale represented a high level of symptomatology.

Table 1. Sociodemographic and Clinical Data in Women with no History of Malignant Neoplasm (Control) and Different Subgroups of Women Treated for Carcinoma of Cervix

	Control (n=95)	RH (n=37)	CRT (n=43)	RH+CRT (n=17)	p-value
Current age ^c	45.6±9.8	50.9±8.2	54.5±11.1	57.9±9.8	<0.001*
Underlying disease ^b	40(42.1)	9(24.3)	23(53.5)	9(52.9)	0.48
Currently in a relationship ^b	86(90.5)	30(81.1)	19(44.2)	10(58.8)	<0.001*
Children ^b	71(74.7)	35(94.6)	41(95.3)	16(94.1)	0.002*
Have occupation ^b	63(66.3)	19(54.1)	13(30.2)	9(52.9)	0.001*
Income < 10,000 baht ^b	25(26.3)	22(59.5)	35(81.4)	12(70.6)	<0.001*
Education ≤ 2nd school ^b	36(37.9)	31(83.8)	39(90.7)	15(88.2)	<0.001*
Family history of cancer ^b	25(26.3)	8(21.6)	10(23.3)	3(17.6)	0.853

^c, mean ± standard deviation (SD); ^b, n (%); RH, radical hysterectomy; CRT, concurrent chemoradiation; *, statistically significant differences.

Table 2. Comparison of Oncologic Data between Subgroups of Women Treated for Carcinoma of Cervix

	RH(n=37)	CRT(n=43)	RH+CRT(n=17)	p-value
Age (yr) ^ε	46.2±9.7	50.4±10.8	53.0±9.8	0.053
Stage (FIGO) ^β				<0.001*
I	37 (100)	9 (20.9)	10 (58.8)	
II	0	20 (46.5)	6 (35.3)	
III	0	11(25.6)	1 (5.9)	
IV	0	3 (7.0)	0	
Time (yr) ^ε	5.9±3.2	4.1±3.8	5.4±3.5	0.067

Age, age at time of treatment; FIGO, International Federation of Gynecology and Obstetrics; Time, time elapsed since treatment; ^ε, mean ± standard deviation (SD); ^β, n (%); RH, radical hysterectomy; CRT, concurrent chemoradiation; *, statistically significant differences.

Results

This study included 95 healthy women who visited outpatient clinic gynecological department, Thammasat university hospital between January to June 2016. The study and control groups were the cervical cancer survivors and healthy cases who visited the clinic during that period. Their mean ages of the study and control groups were 53.7± 10.1 and 45.6±9.8 years, respectively.

Demographic and socioeconomic clinical data in both groups were shown in Table 1. There was no significant difference between both groups except age, marital status, occupation, parity, income and education.

The cervical cancer cases were 56 (57.7%), 26(26.8%), 12(12.4%) and 3(3.1%) in stage I, II, III and IV, respectively. One thirds of cervical cancer cases were treated by radical hysterectomy (RH). The remaining subjects received either concurrent chemoradiation (CRT) or RH with CRT as presented in Table 2. Significant difference was found in different stages among the

treatment subgroups (p<0.05, Table 2).

No significant difference was found among the study and control groups in physical, role, emotional, cognitive and social function, nausea and emesis, pain, dyspnea, insomnia, appetite loss, constipation, diarrhea and financial difficulties. Statistically significant finding was found in global health and fatigue criteria. Cervical cancer survivors had higher score in emotional and social function, global health and pain. They also reported lower score in physical and role function, fatigue, appetite loss, and financial difficulties than their healthy peers.

There was no significant difference among the 4 treated subgroups in cognitive function, nausea and emesis, dyspnea, insomnia, constipation and diarrhea. However, there were significant differences in physical, role, emotional and social function. Global health, fatigue, pain, appetite loss, and financial difficulties also showed statistically significant finding. Cervical cancer survivors had higher score in emotional and social function, global health and pain than control group. They also reported

Table 3. Quantitative Score (EORTC QLQ-C30) Compared Study to Control Groups

	Control ^ε	RH ^β	CRT ^β	RH+CRT ^β
Functional scales				
Physical function	97.1±6.1	-24.4 (-46.4,-2.5)*	-34.5 (-53.6,-15.4)*	-27.2 (-49.2,-5.4)*
Role function	92.8±18.7	3.6 (-3.4,10.6)	-8.7 (-15.3,-2.0)*	-6.5 (-16.1,3.0)
Emotional function	74.5±7.1	10.2 (0.6,19.8)*	1.8 (-13.5,17.1)	3.8 (-9.8,17.3)
Cognitive function	86.3±6.1	6.0 (-2.2,14.2)	0.7 (-12.3,13.7)	4.6 (-7.0,16.1)
Social function	88.7±6.5	10.4 (1.7,19.2)*	3.2 (-10.8,17.1)	3.7 (-8.7,16.1)
Global health/QoL	55.2±6.8	22.2 (13.0,31.5)*	20.2 (5.4,34.9)*	22.0 (8.9,35.1)*
Symptom scales				
Fatigue	23.6±7.6	-11.3 (-21.5,-1.0)*	-0.3 (-16.6,16.0)	-6.7 (-21.2,7.8)
Nausea and Emesis	9.1±4.8	-5.6 (-12.1,0.8)	1.2 (-9.1,11.5)	0.3 (-8.9,9.4)
Pain	17.1±7.2	-2.3 (-12.1,7.5)	16.6 (1.0,32.1)*	3.9 (-9.9,17.7)
Single item scales				
Dyspnea	16.7±7.1	-7.7 (-17.4,2.0)	-8.6 (-23.9,6.8)	-10.4 (-24.1,3.3)
Insomnia	14.7±8.2	-9.5 (-20.5,1.6)	-0.7 (-18.3,16.9)	-8.2 (-23.8,7.4)
Appetite loss	5.9±6.9	-12.6 (-21.9,-3.2)*	-4.6 (-19.4,10.3)	-5.0 (-18.2,8.1)
Constipation	9.7±8.7	-4.1 (-15.9,7.6)	-5.1 (-23.9,13.6)	-6.1 (-22.7,10.6)
Diarrhea	7.5±5.5	-2.9 (-10.3,4.5)	9.1 (-2.7,20.9)	4.1 (-6.4,14.6)
Financial difficulties	22.9±8.0	-12.0 (-22.0,-1.3)*	3.4 (-13.7,20.5)	2.5 (-12.7,17.7)

^ε, mean ± standard deviation (SD); ^β, mean difference from control group with CI (95% confidential interval); RH, radical hysterectomy; CRT, concurrent chemoradiation; *, statistically significant differences; QoL, quality of life.

lower score in physical and role function, fatigue, appetite loss and financial difficulties than their healthy peers.

Discussion

This study conducted in suburban university hospital, northern Bangkok, Thailand. Half of cancer survivors and one third of healthy peers in this study were housewives. Most cases were more than 40 years old. The majority of housewife group said cancer treatment did not significantly affect the family incomes. All cancer survivors in this study are alive with disease free condition. They only had some regular appointment visit per standard protocol of gynecologic oncology clinic.

Physical function

Not surprisingly, control group had better QoL than all cervical cancer survivors. Subjects who previously underwent CRT reported the worst QoL among the survivor group. Cervical cancer patients regardless of their treatment choices had some longlasting effects on their physical functions. They all reported difficulties to perform daily physical functions compared to the period before the cancer diagnosis.

Role function

Cancer survivors with CRT had less ability to perform role function than the control group. Our finding was similar to Swangvaree's work done in Thailand (Swangvaree S and Kosiyatrasul T., 2010). In their report cancer survivors had fatigue resulting from CRT side effects. Our cancer survivors with CRT was less likely to perform normal physical function that they used to enjoy.

Emotion function

The cancer survivors who just only underwent RH reported less stress and depression than the control group. As a group they were younger and were diagnosed at earlier stage of cancer than other cancer survivors. Our subjects were all Buddhist (not reported). The fact that Buddhism taught people to accept incidences in life as a result of Karma might contribute to less stress and depression in our young RH group. Cancer was a bad word in Thai culture. People thought having cancer were kisses of death. Our young RH cancer survivors though it was a blessing each day they lived after their operation. The culture framework might explain less stress and depression than control group.

Furthermore, CRT group composed of patients with early and early advanced stage of cancer. When all affected tissue was removed from radical surgery. It takes only 7-10 days of hospital admission. Time of radiotherapy was longer than surgical treatment. It took around three months for completion of the CRT course. Stress and trauma of RH group was disappeared more rapidly than those of CRT group. Surgical group's experience were much shorter in duration than CRT and RH with CRT groups. Long endurance from radiation process plus radiation side effects lessen QoL in emotional dimension of our cancer survivors.

Cognitive function

Cognitive role had no significant difference in all groups in our finding. Cervical cancer treatment had no effect on the brain. However, some study shown patients who received RH with CRT had lower cognitive function than other groups (Bjelic-Radisic V et al., 2012).

Social function

RH was an aggressive destructive surgery. Patients suffered identity crisis because of the lost feminine organs. The RH group had a significantly higher social function than those of control group. RH group were younger than other group. They still had more social communication than the other group. The cases who underwent RH usually had highly concern of their health. They were asymptomatic and diagnosed of early cervical cancer by annual screening. Social support and promoting of patient esteem were important for cervical cancer survivors. It promoted high QoL than those with no support similar to Li's monograph (Li CC et al., 2015).

Global health

Global health of study group had higher scores than that of control group. Some study showed that cervical cancer survivors had higher global health score than pre-treatment (Barnaś E et al., 2012). Our finding supported the result of previous studies. Life took a different meaning after one survived a what considered life threatening disease. Each living day are appreciated more of what life provided.

Fatigue

Hysterectomized cases reported less fatigue than control and CRT group. It could be explained that cervical cancer cases who treated by RH were younger, lower stage than the other group and not exposed side effect for CRT. Pain. The most common problems for cervical cancer was pain (Endarti D et al., 2015). Side effects of radiation and chemotherapy were the source of their pains. CRT group reported more pain score than other groups. Side effects such as nephrotoxicity, leucopenia and hepatotoxicity that caused the patient to feel uncomfortable. In addition to cervical cancer, subjects who underwent CRT had higher cancer stage or cancer metastasis that made patient having more pain than other groups. CRT was one of the factor that cause lower QoL and lower survival rate in cervical cancer survivors (Osann K et al., 2014; Kim MK et al., 2016).

Appetite loss

RH group had less appetite loss than other groups. They were a younger group. Physicians suggested that they should improve their nutrition after surgery. There was no side effect from chemotherapy or radiation in early stage cases who underwent RH. Some study shown that post-treatment cervical cancer survivors had less appetite loss than pre-treatment period (Barnaś E et al., 2012; Dahiya N et al., 2016). These reports did not classify cancer patients according to the treatment they received. However, some study shown that no different in appetite loss in all group (Bjelic-Radisic V et al., 2012).

Financial difficulties

The cancer survivors who underwent RH had the least financial difficulties. After surgical treatment, patient can resume their work normally. They had less frequent appointment than other treatment groups and no adversary problem with their work and income. However, some study explained that they were no different between all group (Caixeta GA et al., 2014; Lee Y et al., 2016; Le Borgne G et al., 2013).

QoL resulted in different outcome. The best group QoL was RH group. Demographically, they were the youngest, health conscious, their cancer found in early stage, and received no side effect either from radiation or chemotherapy. When role function was not effected and emotion was well supported, they have less stress and depression than control group.

Frequent health check and regular cervical cancer screening are highly recommend after 35 year of age as recommended for gold standard. Because early detection and RH around Thai subjects to have a high quality of life with less stress and almost normal function in all aspects.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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