Quality of Life among Thai Women Diagnosed with Cervical Cancer and Cervical Intraepithelial Neoplasia at King Chulalongkorn Memorial Hospital

Surasak Taneepanichskul MD*,
Somrat Lertmaharit MSc*, Sathirakorn Pongpanich PhD*,
Wichai Termrungruanglert MD**, Piyalamporn Havanond MSc*,
Nipon Khemapech MD**, Chonlakiet Khorprasert MD**,
Oraluck Pattanaprateep PhD***, Suchai Kitsiripornchai MD***

** College of Public Health Sciences, Chulalongkorn University, Bangkok, Thailand*
*** Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand*
**** MSD (Thailand) Ltd., Bangkok, Thailand*

Objective: *To determine health related quality of life (QoL) of patients diagnosed with cervical intraepithelial neoplasia (CIN) and cervical cancer compared QoL among stages of cancer and to study the association between QoL and patients' characteristics.*

Material and Method: *The questionnaire elicited information and QoL using Functional Assessment of Cancer Therapy General (FACT-G) questionnaire. The study population was patients with a diagnosis of one of the four FIGO stages of cervical cancer.*

Results: *One hundred seventy two patients completed the present study. The adjusted mean scores QoL was 78.76. There were no significant differences between FIGO stages on the global QoL and subscale. The authors found negative association between age and physical wellbeing scores ($p = 0.049$) and a positive association between age and emotional wellbeing scores ($p = 0.004$). Lower educational attainment was associated with higher emotional wellbeing scores ($p = 0.004$).*

Conclusion: *For many patients, family, religion, or psycho-social support may be considered a necessity. The younger and better-educated groups may require more information and psycho-emotional support.*

Keywords: *Quality of life, Cervical cancer, Cervical intraepithelial neoplasia*

J Med Assoc Thai 2011; 94 (8): 902-7
Full text. e-Journal: *http://www.mat.or.th/journal*

Assessing quality of life (QoL) is one way to evaluate medical outcomes[1]. The WHO defines QoL as individuals' perceptions of their position in life, in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns[2]. To date, interest has focused on understanding the clinical significance of QoL and its implications for patient-care management[3-7].

Cervical cancer is a major problem in less-developed countries. Worldwide, about 500,000 new cases of cervical cancer occur each year[8]. About 80% of these are found in developing nations, where the majority are diagnosed at the late stage[9]. QoL measurement is important in oncology because, despite improved survival rates, the physical and psychological effects of treatment remain[10].

In Thailand, cervical cancer has been the leading female cancer for many decades. The age-standardized incidence rate is 20.9 per 100,000 women-years[11,12]. Thailand has also identified cervical cancer as a national public-health problem. Reports in the literature related to the QoL of cervical-cancer patients have been conflicting. Some studies have found deteriorations in QoL, while some found stable levels or even improvements over time[13-16]. In addition, some researchers reached no definite conclusions and recommended further studies be undertaken[17].

In the context described above, the present study was designed to: 1) determine the health-related QoL of patients diagnosed with cervical intraepithelial neoplasia (CIN) and cervical cancer; 2) compare QoL

Correspondence to:
Havanond P, College of Public Health Sciences, Chulalongkorn University, Bangkok 10330, Thailand.
Phone: 0-2218-8200, Fax: 0-2255-2177
E-mail: piyalamporn.h@chula.ac.th

status between stages of cervical cancer and CIN; and 3) study any correlations between QoL and the general characteristics of patients.

Material and Method

Study design and population

This cross-sectional descriptive study was conducted between February and October 2008. The inclusion criteria were as follows: Thai patients aged > 15 years who were diagnosed with cervical intra-epithelial neoplasia (CIN) or cervical cancer, confirmed by cervical biopsy. Those who suffered from confusion or reduced levels of consciousness, or those who were unable to communicate, were excluded. All patients were identified at the King Chulalongkorn Memorial Hospital, in Bangkok, Thailand.

Sample size calculation[18] yielded a minimum requirement of 23 patients to estimate a standard deviation of 17%, with an acceptable error of 7% and 95% confidence interval.

Ethical considerations

The research protocol was approved by the Ethics Committee of the College of Public Health Sciences, Chulalongkorn University, Bangkok, Thailand. Patients could refuse to participate in the study without any negative impact and receive standard treatment. All patient data were kept confidential and used only for the present study.

Outcome measurement

The study data were collected from patient records and included the patients' demographic characteristics and patient staging, according to the International Federation of Gynecology and Obstetrics (FIGO)[19]. QoL was assessed using the Thai version of the Functional Assessment of Cancer Therapy-General (FACT-G) questionnaire, version 4. The FACT-G questionnaire, which had been mainly developed in English, measures QoL specifically for cancer patients. The questionnaire is sensitive to cancer characteristics, including staging and changes in a patient's condition over time. Performance and validity had been verified as adequate for research purposes[20-22]. The Thai version had high construct validity and internal consistency, with Cronbach's alpha of 0.75-0.90[23,24]. The questionnaire comprises 27 items under four domains of wellbeing-physical, emotional, social and functional. The five possible responses are scored from 0-4: "not at all" = score of 0, "a little bit" = 1, "somewhat" = 2, "quite a bit" = 3 and "very much" = 4.

Trained interviewers asked the eligible patients, who participated voluntarily after signing informed consent, to fill in the questionnaire. If patients had difficulty in reading, the interviewer read questions and answered choices for them.

After data collection, questions with negative answers were reversed for data analysis. The total range of possible scores (0-108) was truncated to 0-100. Higher scores corresponded to higher levels of QoL.

Data analysis

Standard descriptive statistics, including frequency, mean and standard deviation, were used to analyze and summarize the variables. Different stages of cervical cancer were grouped by similarity of treatment modality. Analysis of co-variance (ANCOVA) was used to test for any differences in QoL among patients with different stages of disease. Partial correlation coefficients were calculated to assess associations between QoL and demographic data. A p-value of < 0.05 was considered statistically significant. To assess the true population mean, 95% confidence interval (95% CI) was used.

Results

One hundred seventy two patients with the following diagnoses were included in the present study: CIN1 (n = 25), CIN2/3 (n = 25), IA1 (n = 25), IA2 IB IIA (n = 37), IIB-IVA (n = 32) and IVB (n = 28). Table 1 summarizes the demographic data. The mean age was 49.0 years (SD $\pm$ 12.5), with a range of 17-85 years. Most of the patients were housewives (49.1%); 58.0% had a formal educational level of primary school or lower.

The FACT-G scales showed high internal consistency (Cronbach's alpha 0.87).

The age difference between the CIN and cervical cancer patient groups was significant ($p < 0.001$). Employment status did not differ between stages of disease. Higher than compulsory education was reported by 28% of stage IVB and 15.6% of stage IIB-IVA patients. Those with advanced-stage cervical cancer had lower education levels than the CIN patients ($p = 0.013$).

Table 2 shows the mean QoL scores by disease stage, adjusted for age and educational level. The adjusted mean for overall QoL was 78.76 (95% CI = 76.89-80.63), for physical wellbeing 82.99 (95% CI = 80.51-85.46), for social wellbeing 72.87 (95% CI = 70.37-75.37), for emotional wellbeing 79.90

Table 1. General characteristics of the study population (n = 172)

	CIN1 n = 25	CIN2/3 n = 25	IA1 n = 25	IA2, IB, IIA n = 37	IIB-IVA n = 32	IVB n = 28
Age (yr)						
Mean	38.8	41.2	42.5	52.1	58.4	56.4
Median	42.0	41.0	43.0	52.0	56.5	57.0
SD	11.1	8.5	7.3	9.2	11.8	11.5
Minimum	17	25	25	36	37	39
Maximum	53	62	53	82	85	81
Occupation (%)						
Unskilled worker	28.0	36.0	28.0	24.3	31.3	24.0
Skilled worker	24.0	32.0	24.0	29.7	9.4	16.0
Housewife, don't work	48.0	32.0	48.0	46.0	59.4	60.0
Educational level (%)						
Primary or lower	48.0	44.0	54.2	54.1	84.4	72.0
Secondary or higher	52.0	56.0	45.8	45.9	15.6	28.0

CIN = cervical intraepithelial neoplasia; IA1 = cervical cancer stage IA1; IA2, IB, IIA = cervical cancer stage IA2, IB, IIA; IIB-IVA = cervical cancer stage IIB-IVA; IVB = cervical cancer stage IVB

Table 2. Average QoL scores; all values adjusted by ANCOVA for age and education

	CIN1	CIN2/3	IA1	IA2, IB, IIA	IIB-IVA	IVB
Physical wellbeing (95% CI)						
Mean	89.240	88.529	85.826	80.215	73.840	80.283
Lower bound	82.460	81.944	79.189	74.784	67.761	73.757
Upper bound	96.020	95.115	92.462	85.646	79.918	86.810
Social wellbeing (95% CI)						
Mean	69.150	66.567	74.066	71.876	78.040	77.515
Lower bound	62.309	59.923	67.370	66.397	71.907	70.930
Upper bound	75.991	73.211	80.762	77.356	84.173	84.099
Emotional wellbeing (95% CI)						
Mean	77.110	77.782	75.640	83.939	79.963	84.960
Lower bound	70.514	71.375	69.183	78.655	74.049	78.611
Upper bound	83.707	84.188	82.097	89.223	85.877	91.310
Functional wellbeing (95% CI)						
Mean	79.130	77.744	77.652	79.774	79.044	83.434
Lower bound	71.819	70.642	70.494	73.917	72.489	76.396
Upper bound	86.442	84.845	84.809	85.631	85.600	90.471
Overall QoL (95% CI)						
Mean	78.715	77.651	78.394	78.766	77.639	81.422
Lower bound	73.597	72.680	73.384	74.667	73.050	76.496
Upper bound	83.833	82.621	83.404	82.866	82.227	86.348

CIN = cervical intraepithelial neoplasia; IA1 = cervical cancer stage IA1; IA2, IB, IIA = cervical cancer stage IA2, IB, IIA; IIB-IVA = cervical cancer stage IIB-IVA; IVB = cervical cancer stage IVB

(95% CI = 77.49-82.31) and for functional wellbeing, 79.46 (95% CI = 76.79-82.13). There were no significant differences between CIN1, CIN2/3 and FIGO stages for global QoL or subscale.

In the examination of potential relationships between QoL and demographics, Pearson correlation revealed a negative correlation between age and physical wellbeing (r = -0.151, p-value = 0.049) and a

Table 3. Correlation between QoL and age

Correlation between	r	p-value
Age and Physical wellbeing	-0.1514	0.049
Age and Social wellbeing	-0.0187	ns
Age and Emotional wellbeing	0.2223	0.004
Age and Functional wellbeing	-0.1210	ns
Age and Overall QoL	-0.0476	ns

ns = no statistical significance

positive correlation between age and emotional wellbeing (r = 0.222, p-value = 0.004) (Table 3).

The relationships between educational level and QoL are shown in Table 4. QoL scores did not differ significantly with respect to educational level, except for emotional wellbeing, which was higher for those with educational levels ≤ compulsory school, compared with those with higher education levels (p = 0.044). No association between employment status and QoL was statistically significant (Table 5).

Discussion

In the present study, the age differences at each stage confirmed the demographic patterns of cervical-cancer patients; the CIN patients were in the younger age group, while the cervical cancer patients were in the older age group. Overall QoL scores did not differ by FIGO disease stage. This finding agreed with others[15,16]. In 2001, Chan et al reported that site and stage of disease had no impact on QoL[25]. However, this finding contrasted with those of some other researchers[26]. One reason the CIN patients experienced the same impact on QoL as the advanced cancer patients may be that this was the first time that the patients became aware of the disease, regardless of its stage. Moreover, in the Thai language, the word "CIN" means pre-invasive cervical cancer; patients may have equated this word with cancer or as one step away from cancer.

A review of the relevant literature showed that people who were older, believed in the existence of an afterlife and who had higher intrinsic religiosity, experienced significantly lower anxiety about death[27,28]. Another study reported the highest overall QoL in older patients[29]. The present study found that patients who were older, who were unskilled workers, or had lower education levels, reported higher levels of emotional wellbeing (Table 3, 4). This may be related to a shift in standards, values, or conceptions of QoL. Moreover, most were Buddhists, who believed in the

Table 4. Educational status and QoL

	Primary or lower (n = 101)		Secondary or higher (n = 67)		p-value
	Mean	SD	Mean	SD	
Physical wellbeing	82.96	15.88	82.13	17.29	ns
Social wellbeing	73.14	16.32	73.38	16.14	ns
Emotional wellbeing	82.43	15.55	77.36	16.34	0.044
Functional wellbeing	80.76	16.84	77.99	17.47	ns
Overall QoL	79.72	11.58	77.73	12.59	ns

ns = no statistical significance

Table 5. Employment status and QoL

	Unskilled worker (n = 48)		Skilled worker (n = 38)		Housewife/don't work (n = 83)	
	Mean	SD	Mean	SD	Mean	SD
Physical wellbeing	86.16	14.78	83.79	13.65	80.26	18.15
Social wellbeing	75.65	14.77	72.60	16.90	72.06	16.62
Emotional wellbeing	80.64	17.54	79.61	15.85	80.77	15.29
Functional wellbeing	83.93	17.39	79.70	14.60	77.19	17.58
Overall QoL	81.63	12.96	78.90	10.45	77.46	11.90

results of "Bad Karma", the results of their actions in a past life, or the concept of the "Turning Wheel", which may make an individual feel calmer and accept the situation more easily. Buddhist perspectives on health and disease have been documented elsewhere[30-32].

Cervical-cancer therapy has significantly improved survival rates. Maintenance of a satisfactory QoL is important for patients and survivors, and may involve a range of professional services. For many patients, cervical cancer survivors, and CIN patients, support from physicians, health personnel, society, the family, and religion, may be necessary. The younger and better-educated groups may require more information and psycho-emotional support.

Acknowledgement

The authors wish to thank Puneet K Singhal, PhD, Merck & Co., Inc., for reviewing the manuscript.

Potential conflicts of interest

The authors wish to thank MSD (Thailand) for funding the present study.

References

1. Moinpour CM, Feigl P, Metch B, Hayden KA, Meyskens FL Jr, Crowley J. Quality of life end points in cancer clinical trials: review and recommendations. J Natl Cancer Inst 1989; 81: 485-95.
2. World Health Organization. WHOQOL: measuring quality of life. Geneva: WHO; 1997.
3. Andersen BL. Stress and quality of life following cervical cancer. J Natl Cancer Inst Monogr 1996; 21: 65-70.
4. Bodurka DC, Sun CC, Frumovitz MM. Quality of life in cervix cancer survivors—what matters the most in the long-term? Gynecol Oncol 2005; 97: 307-9.
5. Schover LR. Quality counts: the value of women's perceived quality of life after cervical cancer. Gynecol Oncol 2000; 76: 3-4.
6. Speca M, Robinson JW, Goodey E, Frizzell B. Patients evaluate a quality of life scale: whose life is it anyway? Cancer Pract 1994; 2: 365-70.
7. Taechaboonsermsak P, Kaewkungwal J, Singhasivanon P, Fungladda W, Wilailak S. Causal relationship between health promoting behavior and quality of life in cervical cancer patients undergoing radiotherapy. Southeast Asian J Trop Med Public Health 2005; 36: 1568-75.
8. Pan Ameracan Health Organization. News and public information [database on the Internet]. 2006 [cited 2010 Jan 10]. Available from: http:\\www.paho.org/english/dd/PIN/pr61117.htm
9. World Health Organization. Cancer control [database on the Internet]. 2001 [cited 2010 Jan 10]. Available from: http:\\www.who.int/mip2001/file/1969/cancercontrol pdf.
10. Romagnolo C. Quality of life in gynaecological oncology. Clin Exp Obstet Gynecol 1991; 18: 203-5.
11. Pengsaa P, Jindawijak S. Cervix uteri. In: Sriplung H, Sontipong S, Martin N, Wiangnon S, Vootiprux V, Cheirsilpa A, editors. Cancer in Thailand. Vol. III, 1995-1997. Bangkok: Bangkok Medical Publisher; 2003: 49-50.
12. Deerasamee S, Srivatanakul P. Cervix uteri. In: Deerasamee S, Martin N, Sontipong S, Sriamporn S, Sriplung S, Srivatanakul P, et al., editors. Cancer in Thailand. Vol. II, 1992-1994. Lyon: IARC; 1999: 56-9.
13. Miller BE, Pittman B, Case D, McQuellon RP. Quality of life after treatment for gynecologic malignancies: a pilot study in an outpatient clinic. Gynecol Oncol 2002; 87: 178-84.
14. Greimel ER, Haas J, Thiel I. Preliminary Results of a study assessing the quality of life of female cancer patients. Qual Life Res 1999; 8: 586.
15. Carter JR, Chen MD, Fowler JM, Carson LF, Twiggs LB. The effect of prolonged cycles of chemotherapy on quality of life in gynaecologic cancer patients. J Obstet Gynaecol Res 1997; 23: 197-203.
16. Carter J, Johnson P, Saltzman A, Chen D, Carnery P, Hartenbach, E et al. Lack of adverse effect on quality of life of up to six cycles of chemotherapy in gynecologic cancer patients. Int J Gynecol Cancer 1997; 7: 439-44
17. Jones GL, Ledger W, Bonnett TJ, Radley S, Parkinson N, Kennedy SH. The impact of treatment for gynecological cancer on health-related quality of life (HRQoL): a systematic review. Am J Obstet Gynecol 2006; 194: 26-42.
18. Lemeshow S, Hosmer DW Jr, Klar J, Lwanga SK. Adequacy of sample size in health studies. New York: John Willey & Sons; 1990.
19. DiSaia PJ, Creasman WT. Clinical gynecologic oncology. 4th ed. St. Louis: Mosby-Year Book; 1993.
20. Winstead-Fry P, Schultz A. Psychometric analysis of the Functional Assessment of Cancer Therapy-General (FACT-G) scale in a rural sample. Cancer 1997; 79: 2446-52.

21. Cella DF, Tulsky DS, Gray G, Sarafian B, Linn E, Bonomi A, et al. The Functional Assessment of Cancer Therapy scale: development and validation of the general measure. J Clin Oncol 1993; 11: 570-9.
22. Cella DF, Tulsky DS. Quality of life in cancer: definition, purpose, and method of measurement. Cancer Invest 1993; 11: 327-36.
23. Ratanatharathorn V, Sirilerttrakul S, Jirajarus M, Silpakit C, Maneechavakajorn J, Sailamai P, et al. Quality of life, Functional Assessment of Cancer Therapy-General. J Med Assoc Thai 2001; 84: 1430-42.
24. Muraoka MY, Pongnikorn S, Paungsaijai S, Wongmun Y, Wangchai W. Quality of life in Thai cancer patients: result from the Lampang Reginal Cancer Center. Qual Life Res 2005; 14: 2024.
25. Chan YM, Ngan HYS, Li BYG, Yip AMW, Ng TY, Lee PWH, et al. A longtitudinal study on quality of life after gynecologic cancer treatment. Gynecol Oncol 2001; 83: 10-9.
26. Bradley S, Rose S, Lutgendorf S, Costanzo E, Anderson B. Quality of life and mental health in cervical and endometrial cancer survivors. Gynecol Oncol 2006; 100: 479-86.
27. Thorson JA, Powell FC. Elements of death anxiety and meanings of death. J Clin Psychol 1988; 44: 691-701.
28. Thorson JA, Powell FC. Meanings of death and intrinsic religiosity. J Clin Psychol 1990; 46: 379-91.
29. Guo Y, Sheng XJ, Liu Y, Hua XF. Evaluation of quality of life for gynecologic cancer patients. Chin J Cancer Res 2004; 16(4): 292-6.
30. Stonington S, Ratanakul P. Is there a global bioethics? End-of-life in Thailand and the case for local difference. PLoS Med 2006; 3: e439.
31. Ratanakul P. Buddhism, Health and Disease. Eubios J Asian Int Bioethics 2004; 15: 162-4.
32. Pongprasert O. Health care practice of female cervical cancer cased on Buddhist-Thai traditional medicine (meditation treatment) [thesis]. Bangkok: Thammasat University; 2007.

คุณภาพชีวิตของผู้ป่วยมะเร็งปากมดลูกและภาวะปากมดลูกมีเซลล์ผิดปกติในโรงพยาบาลจุฬาลงกรณ์

สุรศักดิ์ ฐานีพานิชสกุล, สมรัตน์ เลิศมหาฤทธิ์, สถิรกร พงศ์พานิช, วิชัย เตมิรุ่งเรืองเลิศ, ปิยลัมพร หะวานนท์, นิพนธ์ เขมะเพชร, ชลเกียรติ ขอประเสริฐ, อรลักษณ์ พัฒนประทีป, สุชัย กิจศิริพรชัย

วัตถุประสงค์: *เพื่อประเมินคุณภาพชีวิตในผู้ป่วยมะเร็งปากมดลูก และภาวะปากมดลูกมีเซลล์ผิดปกติ ตลอดจนศึกษาความสัมพันธ์ระหว่างคุณภาพชีวิตกับลักษณะทั่วไปของผู้ป่วย*

วัสดุและวิธีการ: *การศึกษาเชิงพรรณนา โดยใช้แบบสอบถาม Functional Assessment of Cancer Therapy General (FACT-G)*

ผลการศึกษา: *ผู้ป่วยจำนวน 172 ราย คุณภาพชีวิตโดยรวมมีค่า 78.76 ไม่พบความแตกต่างอย่างมีนัยสำคัญระหว่างระยะของโรคกับคุณภาพชีวิตโดยรวม หรือ ในด้านต่าง ๆ พบความสัมพันธ์เชิงลบระหว่าง อายุ กับ ความผาสุกด้านร่างกาย (p = 0.049) พบความสัมพันธ์เชิงบวกระหว่าง อายุ กับ ความผาสุกด้านอารมณ์ (p = 0.004) พบว่าผู้มีการศึกษาต่ำมีความผาสุกด้านอารมณ์สูงกว่าผู้มีการศึกษาสูง (p = 0.004)*

สรุป: *การดูแลด้านจิตใจ อารมณ์ สังคม โดยการได้กำลังใจจากครอบครัว หรือ ศาสนา มีความสำคัญมากโดยเฉพาะอย่างยิ่งในกลุ่มผู้ที่มีการศึกษาและอายุไม่มากนัก ควรให้ข้อมูลและกำลังใจ*