

Health-related Quality of Life in Women with Cervical Cancer

Qualidade de vida relacionada à saúde em mulheres com câncer do colo do útero

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Abstract

Objective To analyze the factors associated with health-related quality of life (HRQoL) in women with cervical cancer (CC) in a single center in Rio de Janeiro, state of Rio de Janeiro, Brazil.

Methods A cross-sectional study in women with a diagnosis of CC followed-up in the gynecology outpatient clinic of the Hospital do Câncer II (HCII, in the Portuguese acronym) of the Instituto Nacional de Câncer (INCA, in the Portuguese acronym). The data were collected from March to August 2015. Women with palliative care, communication/cognition difficulty, undergoing simultaneous treatment for other types of cancer, or undergoing chemotherapy and/or radiation therapy were excluded. For the evaluation of the HRQoL, a specific questionnaire for women with CC was used (Functional Assessment of Cancer Therapy – Cervix Cancer [FACT-Cx]). The total score of the questionnaire ranges from 0 to 168, with higher scores indicating a better HRQoL.

Results A total of 115 women were included in the present study, with a mean age of 52.64 years old (standard deviation [SD] = 12.13). The domains of emotional (16.61; SD = 4.55) and functional well-being (17.63; SD = 6.15) were those which presented the worst scores. The factors that had an association with better HRQoL in women with CC were having a current occupation, a longer time since the treatment and diagnosis, and women who had undergone hysterectomy.

Conclusion Considering the domains of HRQoL of the women treated for cervical cancer, a better score was observed in the domains of physical and social/family well-being. For most domains, better scores were found between those with a current occupation, with a longer time after the diagnosis and treatment, and among those who had undergone a hysterectomy.

Keywords

- ▶ uterine cervical neoplasms
- ▶ quality of life
- ▶ cross-sectional studies
- ▶ data collection

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Resumo

Objetivo Analisar os fatores associados à qualidade de vida em mulheres com câncer de colo do útero tratadas em um hospital de referência no Rio de Janeiro, RJ, Brasil.

Métodos Estudo transversal em mulheres com diagnóstico de câncer do colo do útero em seguimento ambulatorial no Hospital de Câncer II (HCII) do Instituto Nacional de Câncer (INCA). Os dados foram coletados no período de março a agosto de 2015. Foram excluídas as mulheres em cuidados paliativos, com dificuldade de comunicação/cognição, que estavam em tratamento simultâneo para outros tipos de câncer, ou em quimioterapia e/ou radioterapia. Para a avaliação da qualidade de vida relacionada à saúde, foi utilizado um questionário específico para mulheres com câncer de colo do útero (Avaliação Funcional da Terapia do Câncer – Câncer Cervical (FACT-Cx, na sigla em inglês). O escore total do questionário varia de 0 a 168, com escores mais altos indicando melhor qualidade de vida relacionada à saúde.

Resultados Foram incluídas 115 mulheres com uma média de idade de 52,64 anos (desvio padrão [DP] = 12,13). Os domínios de questões emocionais (16,61; DP = 4,55) e de bem-estar funcional (17,63; DP = 6,15) foram os que apresentaram os piores escores. Os fatores que tiveram associação com melhor qualidade de vida relacionada à saúde em mulheres com câncer de colo do útero foram ocupação atual, maior tempo após o tratamento e diagnóstico, e mulheres que haviam sido submetidas a histerectomia.

Conclusão Considerando os domínios da qualidade de vida relacionada à saúde de mulheres tratadas para câncer do colo do útero, foi observado melhor escore nos domínios de bem-estar físico e social. Para a maioria dos domínios, os melhores escores foram observados entre aquelas com ocupação atual, com mais tempo após o diagnóstico e tratamento, além daquelas que se submeteram a histerectomia.

Palavras-chave

- ▶ câncer do colo do útero
- ▶ qualidade de vida
- ▶ estudos transversais
- ▶ coleta de dados

Introduction

Cervical cancer (CC) is a significant public health problem. In Brazil, it is the 4th most common cancer among women,¹ and in the world, the 3rd, with an incidence of > 520,000 cases. In 2012, CC was responsible for > 260,000 deaths worldwide. Estimates indicate that, of these, ~ 230,000 occurred in less developed countries.² In middle- and low-income countries, the diagnoses of CC are performed too late. Women ≥ 50 years old, living without a partner, and with a low educational level, had a higher risk of receiving the diagnosis of advanced stage CC.³ In 37,638 Brazilian women with CC, the determination in late clinical stages was observed in 70.6% of the cases, with squamous cell carcinoma being the most common type associated with ages ≥ 50 years old, black skin color, and low educational level.⁴ The impact of the treatment of CC can lead to losses in the quality of life (QoL) of the patients. The presence of side effects such as fatigue, diarrhea, nausea, urinary incontinence, lymphoedema, vaginal stenosis, lack of vaginal lubrication, dyspareunia, sensory problems, sleep disorders, stress, and depression is common.⁵⁻⁷ In addition to the impact of the diagnosis of cancer, the consequence of the complications and of the changes in reproductive and hormonal functions affect the identity of the woman.⁸⁻¹⁰

Health-related quality of life (HRQoL) is defined by the World Health Organization (WHO) as “the perception of the

individual about his position in life, in the context of culture and value systems in which he lives, and about his goals, expectations, standards, and concerns.”¹¹ The measurement of HRQoL in women with CC becomes critical. Aspects that not only restrict the clinical treatment but also encompass information on the social participation, on the mental state, and on the functionality of the woman should be included in assessment protocols.¹²

In this context, the present study aims to analyze the factors associated with HRQoL in women with CC in a single center in Rio de Janeiro, state of Rio de Janeiro, Brazil.

Methods

A cross-sectional study was conducted. Women diagnosed with CC at the Hospital do Câncer II (HCII, in the Portuguese acronym) of the Instituto Nacional de Câncer (INCA, in the Portuguese acronym) from March to August 2015 were included. Patients who attended the gynecology outpatient clinic for follow-up consultation were recruited. Women with palliative care, with communication/cognition difficulty, who were undergoing simultaneous treatment for other types of cancer, or who were undergoing chemotherapy and/or radiation therapy were excluded.

The eligible individuals had the objectives of the present study explained to them and signed the informed consent.

The present study was approved by the Ethics and Research Committee of the INCA (CAAE 36438414.6.0000.5274).

The sociodemographic and clinical variables were obtained through the interview and by consulting the medical records of the patients. The instruments for the collection of data were a questionnaire including sociodemographic and clinical variables, and a specific questionnaire of HRQoL for women with CC (Functional Assessment of Cancer Therapy – Cervix Cancer [FACT-Cx]). This instrument was validated for the Brazilian population.¹³ The time interval (years) between the first treatment for CC and the measurement of the HRQoL was considered as “time since treatment”, and the time interval (years) between the diagnosis of CC and the measurement of the HRQoL was considered as “time since diagnosis.”

The FACT-Cx assesses the functioning and satisfaction of women with CC, regarding the previous 7 days. It consists of 42 items comprising the FACT-General (FACT-G) questionnaire (27 questions) and the CC-specific subscale (15 items). The 15 specific subscale items about CC refer to the “additional concerns” domain. The questionnaire is scored on a Likert-type scale of 0 (not at all) to 4 (very much). Some items had built-in negative phrases and, in these cases, the scores were reversed. The total scores range from 0 to 168, with higher scores indicating a better HRQoL.

The descriptive analysis of the population under study was performed using the mean (\pm standard deviation [SD]) and median (minimum–maximum) for continuous variables, and frequency distribution for categorical variables. To evaluate the outcome (score from the domains of QoL), a simple linear regression was performed, and the variables that presented $p < 0.20$ were selected for the multiple linear regression model. The value of the β coefficient is the difference in means. The adjusted model was composed of the variables that showed statistical significance ($p < 0.05$). All of the analyses were performed using IBM SPSS Statistics for Windows, Version 23.0 (IBM Corp., Armonk, NY, USA).

Results

In the present study, a total of 115 women were included. The mean age of the patients was 52.64 years old (± 12.13), with a mean body mass index (BMI) of 27.18 (± 5.97). At the time of the interview, 40.0% of the patients had incomplete elementary school education and had a mean of 3 children (± 2.21). The women were married or in a stable relationship (47.0%), did not have an occupation (64.3%), and reported not smoking (90.4%) or consuming alcohol (82.6%) currently. The patients were classified as up to stage IB (41.7%), and 63.5% had undergone radiotherapy and chemotherapy (►Table 1).

In ►Table 2, the HRQoL (FACT-Cx) scores are presented. The lowest means of the domains were observed in the emotional well-being (16.61 ± 4.55), and in the functional well-being (17.63 ± 6.15), and the highest factors were in the physical well-being (19.26 ± 5.63), and in the social/family well-being (18.20 ± 5.78). The additional concerns domain presented a mean score of 41.69 (± 8.49), and the total score of the FACT-Cx was 112.15 (± 22.91).

Table 1 Sociodemographic and clinical characteristics of the study population ($n = 115$)

Variables	n	%
Schooling/ educational level		
Incomplete elementary school education	72	62.5
Complete elementary school education	43	37.5
Marital status		
Married/stable relationship	54	47.0
Divorced	19	16.5
Widowed	21	18.3
Single	21	18.3
Race		
White	43	37.4
Other	72	62.6
Occupation		
Yes	41	35.7
No	74	64.3
Currently smoking		
Yes	11	9.6
No	104	90.4
Alcohol consumption (previous 7 days)		
Yes	20	17.4
No	95	82.6
Stage (FIGO)		
IA	12	10.4
IB	36	31.3
IIA	17	14.8
IIB	19	16.5
IIIA	13	11.3
IIIB	18	15.7
Treatment		
Chemotherapy + radiotherapy	73	63.5
Hysterectomy	42	36.5

Abbreviations: FIGO, International Federation of Gynecology and Obstetrics.

The variables associated with each FACT-Cx domain are presented in ►Table 3. In each area of QoL, the variables that presented $p < 0.20$ were selected for the multiple linear regression model. The independent factors associated with HRQoL in every domain are shown in ►Table 4. In the physical well-being domain, women with an occupation had a HRQoL score 2.39 points higher than women without a profession. In the social/family well-being domain, better HRQoL scores were reported in women with > 2 years since the diagnosis of CC (3.53 points), no children (4.88 points), and who had been treated with hysterectomy (2.57 points). Better scores in the domains of emotional and functional well-being were observed for women with > 2 years since

Table 2 Health-related quality of life scores in women with cervical cancer ($n = 115$)

FACT-Cx	Mean (SD)	Median	Minimum	Maximum	Score range
Physical well-being (PWB)	19.26 (5.63)	19.0	4.0	28.0	0–28
Social/Family well-being (SWB)	18.20 (5.78)	18.0	2.0	28.0	0–28
Emotional well-being (EWB)	16.61 (4.55)	16.0	6.0	24.0	0–24
Functional well-being (FWB)	17.63 (6.15)	18.0	2.0	28.0	0–28
Additional Concerns	41.69 (8.49)	42.0	20.0	60.0	0–60
Total FACT-Cx	112.15 (22.91)	109.5	61.0	168.0	0–168

Abbreviations: FACT-Cx, Functional Assessment of Cancer Therapy – Cervix Cancer; SD, Standard Deviation.

the diagnosis or since the treatment (1.96 and 4.25, respectively). In the domain of additional concerns specific to CC, women with an occupation had higher HRQoL scores (3.54 points). In the total score for the FACT-Cx, having a job (14.01 points), and having undergone hysterectomy (8.82 points) were both associated with a better HRQoL.

Discussion

For most of the domains of HRQoL, the best scores were observed in women with a longer time elapsed since the time of diagnosis and treatment, in addition to those who had undergone hysterectomy.

Our results show that ~ 42% of the patients were diagnosed in the initial stages of CC (up to stage IB), which was in contrast to what has been observed in another study in Brazil, with a sample of 4,950 cases, in which 69.4% of the cases had locally advanced disease (stages II and III), and stage I represented only 27.9% of the cases.¹⁴ In another survey conducted in Brazil, 55% of the women were in stage IIb.¹⁵ In contrast, a study performed in China with 400 women, 61% were diagnosed in the initial stage (I),¹⁶ while another survey in Korea with 860 women noted that 66.8% of the women were in stage I.¹⁷

Women who have undergone hysterectomy presented better QoL scores. We could speculate that women for whom hysterectomy was indicated had a better prognosis than women for whom radiotherapy was indicated. However, a recent Cochrane systematic review found insufficient evidence that hysterectomy with radiation, with or without chemotherapy, improves the survival of women with locally advanced CC who are treated only with radiotherapy or chemoradiotherapy.¹⁶

Around 63% of the participants in our study were undergoing radiotherapy and chemotherapy, as has also been observed in a Chinese study, in which 57.1% and 77.1% of the patients also received radiotherapy and chemotherapy, respectively.¹⁷ In the survey by Osann et al,¹⁸ it was observed that patients who received radiation, with or without chemotherapy, had a worse HRQoL in comparison with patients who just underwent surgery. In a systematic review, radiation therapy was also associated with a worse HRQoL.¹⁹

Our results demonstrate that the best HRQoL domains were physical and social/family well-being, as in the studies of Zhou et al¹⁷ and of Ding et al.²⁰ The worst scores were

noted for the emotional well-being domain, which can be related to psychosocial factors and depression, since it is observed that women feel more incapable after treatment, mainly concerning housework.^{19,21}

The patients with an occupation at the time of the interview presented better HRQoL scores in physical well-being, additional concerns, and in the total FACT-Cx score. This finding corroborates the results of an Italian study, which showed that women with locally advanced CC who were unemployed had the worst ratings for HRQoL in all domains.²² In a multicentre study in Korea, which included 858 women, all of the QoL scores were better for women with an occupation.²³ Women with a time since diagnosis > 2 years showed better HRQoL scores in the domains of social/family and of emotional well-being, and those with a time since treatment of > 2 years showed better HRQoL scores in the functional well-being domain. A study conducted in Taiwan²⁴ showed that the older survivors and those with a longer time since treatment had worse global HRQoL scores; however, this was a study with a mean age that was higher than ours, and the results may be related to senescence rather than just to the time since treatment. In the study by Mantegna et al,²⁵ it was reported that the longer the time since both diagnosis and treatment, the better the HRQoL, which is in line with our results.

This is a cross-sectional study with no internal comparison group. As possible limitations, we emphasize that, because it is a cross-sectional study, it is not possible to evaluate the temporality between the exposure variables (occupation and treatment) and HRQoL. Because it is a study conducted in a single center specialized in oncological surgery, the chance of systematic bias is lower, which provides a better internal validity. However, bias selection as to nonregistration of refusals and to total invitations can be present. Therefore, there is a decrease in external validity, and these results should be generalized to populations with similar characteristics (i.e., low socioeconomic level, users of the public health system [SUS, in the Portuguese acronym]).

The low socioeconomic level of our sample and the persistent inequities of health system in Brazil may also be associated with negative influences in HRQoL. Cancer is no longer a disease with a primary outcome of mortality. The sequelae of the disease may be caused by the disease itself, by its treatment, or even by a combination of the two. In women with CC, the diagnosis and treatment can result in a context of acute stress. Deterioration in QoL can occur in chronic

Table 3 Association of health-related quality of life, sociodemographic and clinical variables (univariate analysis)

Variables	Physical well-being (PWB)		Social well-being (SWB)		Emotional well-being (EWB)		Functional well-being (FWB)		Additional Concerns		Total FACT-Cx	
	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value
Age (years old)												
< 50	18.96 (5.16)	0.633	16.93 (6.65)	0.500	16.20 (4.40)	0.432	16.34 (5.96)	0.600	40.61 (7.81)	0.600	109.84 (22.78)	0.248
≥ 50	19.47 (5.97)		19.13 (4.90)		16.88 (4.66)		18.53 (6.17)		42.55 (8.97)		113.96 (23.06)	
Stage (FIGO)												
< IIB	18.74 (5.39)	0.387	17.60 (5.82)	0.341	15.86 (4.65)	0.123	16.90 (6.43)	0.263	40.67 (7.96)	0.256	109.84 (22.78)	0.133
≥ IIB	19.66 (5.83)		18.67 (5.75)		17.19 (4.42)		18.20 (5.91)		42.57 (8.90)		113.96 (23.06)	
Treatment												
CT + RT	18.48 (5.35)	0.500	17.21 (6.13)	0.020	16.36 (4.78)	0.456	17.16 (6.49)	0.282	40.52 (8.22)	0.058	108.21 (20.99)	0.024
Hysterectomy	20.62 (5.93)		19.85 (4.77)		17.02 (4.16)		18.45 (5.50)		43.81 (8.68)		118.86 (24.73)	
Children												
No	21.44 (6.00)	0.228	23.37 (4.41)	0.008	18.22 (4.55)	0.237	21.00 (6.59)	0.880	44.13 (10.41)	0.402	128.43 (23.06)	0.051
Yes	19.08 (5.60)		17.79 (5.69)		16.46 (4.54)		17.35 (6.06)		41.49 (8.34)		110.92 (22.55)	
Time since treatment (years)												
≤ 2	18.80 (4.89)	0.325	16.97 (5.88)	0.008	16.00 (4.50)	0.115	15.75 (5.66)	<0.001	41.25 (7.61)	0.538	108.51 (20.81)	0.056
> 2	19.84 (6.54)		19.89 (5.25)		17.35 (4.55)		20.00 (5.97)		42.30 (9.62)		117.39 (24.97)	
Time since diagnosis (years)												
≤ 2	18.83 (4.12)	0.451	16.29 (5.88)	0.001	15.54 (4.54)	0.021	15.45 (5.13)	<0.001	41.72 (7.02)	0.975	108.27 (19.91)	0.097
> 2	19.63 (6.68)		19.88 (5.18)		17.50 (4.40)		19.50 (6.38)		41.67 (9.72)		115.88 (25.09)	
Education (elementary school)												
Incomplete	19.11 (5.89)	0.814	17.14 (5.80)	0.122	16.20 (4.68)	0.432	17.91 (5.67)	0.694	42.63 (7.99)	0.364	110.38 (22.14)	0.541
Complete	19.36 (5.50)		18.89 (4.48)		16.88 (4.48)		17.45 (6.49)		41.08 (8.81)		113.28 (23.50)	
Variables												
Physical well-being (PWB)												
Mean (SD)		p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value
With partner												
Yes	19.57 (5.88)	0.577	17.24 (5.90)	0.085	16.70 (4.33)	0.840	17.43 (6.13)	0.734	42.55 (6.92)	0.315	112.76 (21.06)	0.792
No	18.98 (5.45)		19.15 (5.55)		16.52 (4.78)		17.82 (6.22)		40.87 (9.76)		111.54 (24.82)	
Race												
White	18.67 (6.17)	0.391	18.15 (5.53)	0.944	15.79 (4.84)	0.138	17.28 (5.67)	0.634	40.87 (8.78)	0.448	110.03 (24.16)	0.48
Other	19.61 (5.31)		18.23 (5.96)		17.10 (4.33)		17.85 (6.45)		42.18 (8.34)		113.40 (22.25)	

Table 3 (Continued)

Variables	Physical well-being (PWB)		Social well-being (SWB)		Emotional well-being (EWB)		Functional well-being (FWB)		Additional Concerns		Total FACT-Cx	
	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value
Occupation												
No	18.41 (5.48)	0.028	17.27 (5.08)	0.024	15.99 (4.12)		16.70 (5.96)	0.028	40.43 (7.46)	0.041	106.83 (19.49)	0.001
Yes	20.80 (5.66)		19.87 (6.61)		17.75 (5.12)		19.32 (6.22)		43.97 (9.80)		122.03 (25.67)	
BMI												
Adequate	18.21 (5.04)	0.123	17.08 (5.18)	0.122	16.40 (4.04)		15.88 (5.39)	0.018	41.16 (8.40)	0.629	107.37 (19.89)	0.127
Overweight and obese	19.89 (5.91)		18.86 (6.04)		16.72 (4.85)		18.68 (6.37)		42.00 (8.59)		114.72 (24.14)	

Abbreviations: BMI, Body mass index; CT, chemotherapy; FACT-Cx, Functional Assessment of Cancer Therapy – Cervix Cancer; FIGO, International Federation of Gynecology and Obstetrics; RT, radiotherapy; SD, standard deviation.

The variables in bold were selected for preparation of the multiple linear regression model ($p < 0.20$). In all of the functional scales, the higher the score, the better the quality of life.

Table 4 Factors associated with health-related quality of life in women with cervical cancer ($n = 115$)

Domains of quality of life	Difference in means (β coefficient)	95% CI	p-value
Physical well-being (PWB)			
Occupation (Yes)	2.39	0.26–4.54	0.028
Social well-being (SWB)			
Time since diagnosis (> 2 years)	3.53	1.53–5.53	0.001
Having Children (No)	4.88	1.05–8.721	0.013
Treatment (Hysterectomy)	2.57	0.51–4.63	0.015
Emotional well-being (EWB)			
Time since diagnosis (> 2 years)	1.96	0.30–3.63	0.021
Functional well-being (FWB)			
Time since treatment (> 2 years)	4.25	2.09–6.41	< 0.001
Additional Concerns			
Occupation (Yes)	3.54	0.14–6.94	0.041
Total FACT-Cx			
Occupation (Yes)	14.01	4.98–23.05	0.003
Treatment (Hysterectomy)	8.82	- 0.10–17.75	0.053

Abbreviations: CI, confidence interval; CT, chemotherapy; RT, radiotherapy.

stress situations, and this can have substantial effects on the well-being of these women.

Conclusion

Considering the domains of HRQoL of women treated for CC, a better score was observed in the domains of physical and of social/family well-being. For most domains, better scores were found between those with a current occupation, with more time since diagnosis and treatment, and among those who had undergone hysterectomy.

Contributors

Santos L. N., Castaneda L., Aguiar S. S., Thuler L. C. S., Koifman R. J., and Bergmann A. contributed to the conception and design of the present study, to the data collection or to the analysis and interpretation of the data, as well as to the writing of the article or to the critical review of the intellectual content and to the final approval of the version to be published.

Conflicts of Interest

The authors have no conflicts of interest to declare.

References

- 1 Ministério da Saúde. Instituto Nacional de Câncer José Alencar Gomes da Silva. Estimativa 2018: Incidência de Câncer no Brasil. Rio de Janeiro, RJ: INCA; 2017
- 2 Ferlay J, Soerjomataram I, Dikshit R, et al. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer* 2015;136(05):E359–E386. Doi: 10.1002/ijc.29210
- 3 Williams-Brennan L, Gastaldo D, Cole DC, Paszat L. Social determinants of health associated with cervical cancer screening among women living in developing countries: a scoping review. *Arch Gynecol Obstet* 2012;286(06):1487–1505. Doi: 10.1007/s00404-012-2575-0
- 4 Thuler LC, de Aguiar SS, Bergmann A. [Determinants of late stage diagnosis of cervical cancer in Brazil]. *Rev Bras Ginecol Obstet* 2014;36(06):237–243. Doi: 10.1590/S0100-720320140005010
- 5 Kim JH, Choi JH, Ki EY, et al. Incidence and risk factors of lower-extremity lymphedema after radical surgery with or without adjuvant radiotherapy in patients with FIGO stage I to stage IIA cervical cancer. *Int J Gynecol Cancer* 2012;22(04):686–691. Doi: 10.1097/IGC.0b013e3182466950
- 6 Bae H, Park H. Sexual function, depression, and quality of life in patients with cervical cancer. *Support Care Cancer* 2016;24(03):1277–1283. Doi: 10.1007/s00520-015-2918-z
- 7 Einstein MH, Rash JK, Chappell RJ, Swietlik JM, Hollenberg JP, Connor JP. Quality of life in cervical cancer survivors: patient and provider perspectives on common complications of cervical cancer and treatment. *Gynecol Oncol* 2012;125(01):163–167. Doi: 10.1016/j.ygyno.2011.10.033
- 8 Santos ALA, Moura JFP, Santos CAAL, Figueiroa JN, Souza AI. Avaliação da qualidade de vida relacionada à saúde em pacientes com câncer do colo do útero em tratamento radioterápico. *Rev Bras Cancerol* 2012;58:507–515
- 9 Ferrandina G, Mantegna G, Petrillo M, et al. Quality of life and emotional distress in early stage and locally advanced cervical cancer patients: a prospective, longitudinal study. *Gynecol Oncol* 2012;124(03):389–394. Doi: 10.1016/j.ygyno.2011.09.041
- 10 Gilchrist LS, Galantino ML, Wampler M, Marchese VG, Morris GS, Ness KK. A framework for assessment in oncology rehabilitation. *Phys Ther* 2009;89(03):286–306. Doi: 10.2522/ptj.20070309
- 11 World Health Organization. *WHOOQOL: Measuring Quality of Life: Introducing the WHOQOL Instruments* <http://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/>. Accessed July 19, 2018.
- 12 Xie Y, Zhao FH, Lu SH, et al. Assessment of quality of life for the patients with cervical cancer at different clinical stages. *Chin J Cancer* 2013;32(05):275–282. Doi: 10.5732/cjc.012.10047
- 13 Fregnani CM, Fregnani JH, Dias de Oliveira Latorre MR, de Almeida AM. Evaluation of the psychometric properties of the Functional Assessment of Cancer Therapy–Cervix questionnaire in Brazil. *PLoS One* 2013;8(10):e77947. Doi: 10.1371/journal.pone.0077947
- 14 Calazan C, Luiz RR, Ferreira I. O diagnóstico do câncer do colo uterino invasor em um centro de referência brasileiro: tendência temporal e potenciais fatores relacionados. *Rev Bras Cancerol* 2008;54:325–331
- 15 Grion RC, Baccaro LF, Vaz AF, Costa-Paiva L, Conde DM, Pinto-Neto AM. Sexual function and quality of life in women with cervical cancer before radiotherapy: a pilot study. *Arch Gynecol Obstet* 2016;293(04):879–886. Doi: 10.1007/s00404-015-3874-z
- 16 Kokka F, Bryant A, Brockbank E, Powell M, Oram D. Hysterectomy with radiotherapy or chemotherapy or both for women with locally advanced cervical cancer. *Cochrane Database Syst Rev* 2015;(04):CD010260. Doi: 10.1002/14651858.CD010260.pub2
- 17 Zhou W, Yang X, Dai Y, Wu Q, He G, Yin G. Survey of cervical cancer survivors regarding quality of life and sexual function. *J Cancer Res Ther* 2016;12(02):938–944. Doi: 10.4103/0973-1482.175427
- 18 Osann K, Hsieh S, Nelson EL, et al. Factors associated with poor quality of life among cervical cancer survivors: implications for clinical care and clinical trials. *Gynecol Oncol* 2014;135(02):266–272. Doi: 10.1016/j.ygyno.2014.08.036
- 19 Ye S, Yang J, Cao D, Lang J, Shen K. A systematic review of quality of life and sexual function of patients with cervical cancer after treatment. *Int J Gynecol Cancer* 2014;24(07):1146–1157. Doi: 10.1097/IGC.0000000000000207
- 20 Ding Y, Hu Y, Hallberg IR. Psychometric properties of the Chinese version of the Functional Assessment of Cancer Therapy–Cervix (FACT–Cx) measuring health-related quality of life. *Health Qual Life Outcomes* 2012;10:124. Doi: 10.1186/1477-7525-10-124
- 21 Kirchheiner K, Nout RA, Czajka-Pepl A, et al. Health related quality of life and patient reported symptoms before and during definitive radio(chemo)therapy using image-guided adaptive brachytherapy for locally advanced cervical cancer and early recovery - a mono-institutional prospective study. *Gynecol Oncol* 2015;136(03):415–423. Doi: 10.1016/j.ygyno.2014.10.031
- 22 Distefano M, Riccardi S, Capelli G, et al. Quality of life and psychological distress in locally advanced cervical cancer patients administered pre-operative chemoradiotherapy. *Gynecol Oncol* 2008;111(01):144–150. Doi: 10.1016/j.ygyno.2008.06.034
- 23 Yoo SH, Yun YH, Park S, et al. The correlates of unemployment and its association with quality of life in cervical cancer survivors. *J Gynecol Oncol* 2013;24(04):367–375. Doi: 10.3802/jgo.2013.24.4.367
- 24 Li CC, Chen ML, Chang TC, Chou HH, Chen MY. Social support buffers the effect of self-esteem on quality of life of early-stage cervical cancer survivors in Taiwan. *Eur J Oncol Nurs* 2015;19(05):486–494. Doi: 10.1016/j.ejon.2015.02.008
- 25 Mantegna G, Petrillo M, Fuoco G, et al. Long-term prospective longitudinal evaluation of emotional distress and quality of life in cervical cancer patients who remained disease-free 2-years from diagnosis. *BMC Cancer* 2013;13:127. Doi: 10.1186/1471-2407-13-127