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research article

Quality of life in patients with cervical cancer FIGO IIb stage after concomitant chemoradiotherapy

Dzenita Ljuca[1], Goran Marosevic[2]

[1]Gynecology and Obstetrics Clinic, [2]Department of Radiotherapy, University Clinical Centre Tuzla, Bosnia and Herzegovina

Background. *The literature reports are unclear regarding the quality of life in patients after the concomitant chemoradiotherapy. Our aim was to define and compare the quality of life of patients with cervical cancer FIGO IIb stage before and after the concomitant chemoradiotherapy.*

Methods. *Nineteen patients were irradiated to 45 Gy in 25 fractions over 5 weeks to the pelvis and additional 20-24 Gy in 4-6 fractions were given by intracavitary high dosage rate (HDR) brachytherapy. Patients received 40 mg/m^2 of cisplatin once a week, starting from the first day of the intracavitary brachytherapy treatment, which is a total of 4-6 cycles of cisplatin. Patients were surveyed with two questionnaires for the assessment of the quality of life. They were developed by the European Organisation for Research and Treatment of Cancer (EORTC): one was cancer specific (EORTC QLQ-C30) and one was site specific (EORTC QLQ-Cx24). Patients answered the questions for the period immediately before diagnosed cervical cancer (thus being a control group) and for the period starting 12 months after the completion of the concomitant chemoradiotherapy (thus being an experimental group).*

Results*. A statistically significant difference between the median scores of these two groups has been found in the quality of life, role function, emotional function, social function, pain, fatigue and vaginal problems.*

Conclusions. *The quality of life of patients with cervical cancer FIGO IIb stage was better after concomitant chemoradiotherapy than before it.*

Key words: concomitant chemoradiotherapy; cervical cancer; quality of life

Introduction

Cervical cancer is a serious health problem since every year, around 500.000 women worldwide develop this disease.[1] It is a number one killer of young women in developing countries.[2] In 2007, in Bosnia and Herzegovina the incidence was 17/100.000 women. In the Federation of Bosnia and Herzegovina, most women with this disease are aged 45 to 54, with a smaller

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Correspondence to: Goran Marosevic, MD, Department of Radiotherapy, University Clinical Centre Tuzla, Trnovac bb, 75000 Tuzla, Bosnia and Herzegovina; Phone: +387 63 116 431; E-mail: mar.goran@hotmail.com

number of those aged 35 to 45. The disease prognosis of patients with cervical cancer depends on the stage of the disease at diagnosis.[3] The concomitant chemoradiotherapy is a gold standard in the treatment of locally advanced disease stages Ib-IVa, and it results in 5-year surviving rate of 65% for IIb stage.[4] The cervical cancer treatment is followed by early complications in the first 6 months after the completed radiotherapy and late complications after this period. The most frequent disorder after the combined treatment of cervical cancer by surgery and radiotherapy is urinary incontinence which limits the patient's activities, comfort and quality of life.[5] Late urinary toxicity after the whole pelvic radiotherapy is frequent also in patients with other cancers.[6] When evaluating the quality of life of patients with cervical cancer, it is important to monitor their mental status.[7] Patients who are disease free after radiotherapy of locally advanced, recurrent or persistent cervical cancer are at high risk of experiencing persistent sexual and vaginal problems compromising their sexual activity and satisfaction.[8] The above mentioned studies show that the cervical cancer therapy is followed by various complications which compromise the quality of life of those patients and it is lower than the one in the control group. However, all studies' control groups included healthy women from that geographical region and it resulted in the lower quality of life of women after the cervical cancer treatment, which was logical to expect. The control group for this study included the same women but in the period before the concomitant chemoradiotherapy which enables us to obtain the real impact of therapy to the quality of life of cervical cancer survivors. All this indicates that it is very important to study the parameters of the quality of life of patients with locally advanced cervical cancer in this way.

The aim of this study is to define and compare the quality of life of patients with cervical cancer FIGO IIb stage before and after the concomitant chemoradiotherapy.

Patients and methods

Patients

This retrospective-prospective study included patients in all age groups who were treated against cervical cancer FIGO IIb stage by the concomitant chemoradiotherapy. The research covered 19 patients. Patients answered the questions in the questionnaire for the period immediately before cervical cancer was diagnosed, thus creating a control group. Then they answered the questions in the questionnaire for the period of 12 months after the completion of the concomitant chemoradiotherapy, thus creating an experimental group. The answers were scored and by statistical data processing they were objectified in the form of results.

Including factors were: FIGO IIb stage of cervical cancer, patients treated by the concomitant chemoradiotherapy and patients with preserved cognitive functions.

Excluding factors were: other FIGO stages of cervical cancer, patients not treated by the concomitant chemoradiotherapy and patients with low cognitive functions.

The data about the patients treated against cervical cancer were taken from case histories and medical charts at the Gynaecology and Obstetrics Clinic of the University Clinical Centre Tuzla. They were treated in the period 2006-2008 at the Clinical Centre of Sarajevo University, at the Oncology Clinic. All patients were irradiated to 40-46 Gy of irradiation energy of 6 MV and 18 MV in 25 fractions over 5 weeks to the pelvis by the linear accelerator Siemens Primus and intracavitary brachytherapy dosage of 20-24

Table 1. EORTC QLQ-C30 mean and median functional scale and single - item scores before and after concomitant chemoradiotherapy

	Before (19 patients)	**After (19 patients)**			
Item	Mean (s.d.)	Median (range)	Mean (s.d.)	Median (range)	p
Global QOL	33 (25)	33 (0-100)	61(21)	66 (16-100)	<0.0001
Functional scale					
Physical function	76 (22)	87 (27-100)	77 (26)	87 (20-100)	0.26
Role function	57 (32)	34 (0-100)	74 (30)	84 (0-100)	0.04
Emotional function	54 (33)	42 (0-100)	80 (21)	92 (34-100)	<0.0009
Social function	80 (22)	84 (34-100)	90 (18)	100(34-100)	0.02
Cognitive function	94 (16)	100 (34-100)	98 (7)	100(67-100)	0.25
Symptom scale					
Pain	31(27)	33 (0-100)	14 (16)	16(0-50)	<0.005
Fatigue	44 (27)	44 (0-88)	23 (25)	13 (0-66)	<0.005
Nausea and vomiting	6 (17)	0 (O-66)	6 (14)	0 (0-50)	0.5
Single items					
Dyspnoea	26 (30)	33 (0-100)	19 (29)	0 (0-100)	0.13
Insomnia	34 (35)	33 (0-100)	24 (26)	33 (0-66)	0.13
Appetite loss	17 (27)	0 (0-66)	12 (19)	0 (0-66)	0.22
Constipation	29 (38)	0 (0-100)	24 (30)	0 (0-100)	0.34
Diarrhoea	8 (18)	0 (0-66)	8 (18)	0 (0-66)	0.5
Financial impact	34 (37)	33 (0-100)	40 (37)	33 (0-100)	0.13

Gy. Intracavitary brachytherapy was applied by a high dosage rate (HDR) with Ir192 by Varian Gammamed. Patients received 40 mg/m^2 of cisplatin once a week, starting from the first day of the intracavitary brachytherapy treatment, which is a total of 4-6 cycles of cisplatin. The concomitant chemoradiotherapy lasted 32 to 49 days in total.

Methods

Patients were surveyed with the questionnaires for the assessment of the quality of life EORTC QLQ-C30 and EORTC QLQ-Cx24. EORTC QLQ-C30 is widely use in oncology[9] and it is "the original questionnaire" which includes the scales of physical, emotional and social health of wide scale of cancer patients. This questionnaire includes five functional scales, three symptom scales for pain, fatigue, nausea and vomiting, a global health status quality of life scale and six single items for dyspnoea, insomnia, appetite loss, diarrhoea, constipation and financial impact. Each of the multi-item scales includes a different set of items – no item occurs in more than one scale.[10] Greimel *et al.*[11] developed the EORTC QLQ-Cx24 questionnaire, modified for cervical cancer patients and it can be used only as a supplement to EORTC QLQ-C30. It includes 24 questions regarding the symptoms related to urinary and gastro-intestinal tract and vaginal problems and sexual activity of patients. They are grouped into 3 scales with multiitem scales and 5 single-item scales.

Statistical analysis

The scoring was performed according to the EORTC QLQ-C30 scoring manual.[10]

Table 2. EORTC QLQ-Cx24 mean and median functional scale and single – item scores before and after concomitant chemoradiotherapy

	Before (19 patients)		**After (19 patients)**		
Items	Mean (s.d.)	Median (range)	Mean (s.d.)	Median (range)	P
Functional scale					
Body image	85 (16)	84 (25-100)	88 (13)	92 (50-100)	0.33
Sexual functioning	34 (35)	48 (0-81)	35 (35)	48 (0-81)	0.28
Symptom scale					
Defecation problems	13 (16)	11 (0-55)	8 (13)	0 (0-44)	0.08
Micturition problems	25 (25)	16 (0-75)	23 (22)	25 (0-75)	0.35
L-S problems	34 (20)	22 (11-66)	31 (22)	33 (0-66)	0.27
Vaginal problems	43 (25)	55 (0-88)	6 (9)	0 (0-33)	<0.0001

The principle for scoring was to estimate the average of the items that contributed to the scale; this was the raw score. A linear transformation was used to standardise the raw score, so that scores ranged from 0 to 100. A high scale score represents a higher response level. The higher scale score for the functional scale or the global health status/QOL represents a higher level of functioning, or higher QOL; whereas the higher level of symptoms/problems for the symptom/item scales represents a higher level of symptomatology, or dysfunction. Missing values were calculated such that if at least one-half of the items from the scale had been completed, it was assumed that the missing items would have had values equal to the average of the items present.

Demographic and clinical data were calculated using descriptive statistics. Results of QOL information were expressed as means and medians. The nonparametric Wilcoxon signed ranks test was used to compare median scores of QOL scales between the examined groups of patients. A 5% level of statistical significance was used for variables ($p<0.05$). Data were analyzed using Arcus Quickstat Statistical Software (version 1.0.0.88, Medical Computing).

Results

The general results of QLQ-C30 for the patients before and after the concomitant chemo-radiotherapy are given in Table 1. The global quality of life scores, representing the overall health and quality of life of patients was statistically significantly better after the concomitant chemoradiotherapy than before it (33 *vs* 66; p<0,0001). The following was noticed: statistically significant improvement of emotional function (42 *vs* 92; p<0.0009), role function (34 *vs* 84; p=0.04) as well as better social function (84 *vs* 100; p=0.02). After the concomitant chemoradiotherapy, patients had significantly lower pain (33 *vs* 16; p<0.005) and fatigue (44 *vs* 13; p<0.005).

The results of QLQ-Cx24 for two analyzed groups are given in Table 2. Out of 19 patients monitored, 9 of them did not have sexual activities before and after the treatment. After the concomitant chemoradiotherapy, patients had significantly less vaginal problems (55 *vs* 6; p<0.0001). In functional scales and other symptom scales there was no statistically significant difference although they had less problems with defecation after the concomitant chemoradiotherapy (11 *vs* 8; p=0.08).

Discussion

Review studies indicate that the quality of life in cervical cancer survivors who were irradiated is worse compared to general female population, although definite conclusions have not been made, especially due to shortcomings of methodology.[12] This study examined the quality of life of the same patients before and after the concomitant chemoradiotherapy which enabled us to obtain the real information about the way this treatment affects the quality of life of patients. We are of the opinion that it is the reason why the results show that the quality of life is better after the concomitant chemo-radiotherapy.

Monitoring the quality of life in disease free period after radiotherapy should include the information about the treatment complications since it might help the patients deal with them and cure the disease symptoms.[6,13] It is important to monitor the mental status of cervical cancer patients in the assessment of their quality of life. While some studies indicate a low mental status with irradiated patients,[7,13] this study reveals significant improvements of emotional functions, higher role function and better social integration, which significantly affects a mental status. Due to tumour regression, pain and fatigue was significantly reduced in patients after the irradiation.

Studies indicate that disease-free patients after radiotherapy of locally advanced, recurrent or persistent cervical cancer, compared to general female population, are at high risk of experiencing persistent sexual function and satisfaction[8] and that the sexual dysfunction compromises the quality of life of cervical cancer survivors the most.[14] Our study does not indicate the difference in sexual function of surveyed patients since almost half of them did not have sexual activities before and after the irradiation due to issues not related to the disease itself. Some patients lost their sexual willingness or their husbands fear they might hurt them, while prior irradiation, they suffered from bleeding and pain during the intercourse, therefore, no differences in sexual function have been found. Since patients after the irradiation had significantly less vaginal problems regarding pain and bleeding, we assume that the sexual function should be better. These results clearly indicate that a doctor should discuss this problem with the future patients during the treatment, which would improve the quality of life of sexually active patients even more.

In conclusion, the quality of life in cervical patients FIGO IIb stage after the concomitant chemoradiotherapy is better than before it. The reason for this statement lies in the fact that pain and fatigue are reduced after the treatment and that emotional, role and vaginal functions are better.

The fact that there is no difference in the quality of sexual function in patients with cervical cancer after the concomitant chemoradiotherapy and that vaginal, social and emotional function are better, paths the way to a new research on this topic.

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