

# Impact of chemoradiotherapy on vaginal and sexual function of patients with FIGO IIB cervical cancer

Dženita Ljuca<sup>1\*</sup>, Goran Marošević<sup>2</sup>

<sup>1</sup> University Clinical Centre Tuzla, Department of Gynaecology and Obstetrics, Univerzitetska 1, 75000 Tuzla, Bosnia and Herzegovina

<sup>2</sup> University Clinical Centre Tuzla, Department of Oncology and Radiotherapy, Trnovac bb, 75000 Tuzla, Bosnia and Herzegovina

## ABSTRACT

The opinion regarding sexual and vaginal function of patients with advanced cervical cancer treated primarily by chemoradiotherapy has still not been formed, mainly due to inappropriate methodology as the control group was comprised of healthy women. The aim of this study is to, by means of interview, evaluate vaginal and sexual function of patients with advanced cervical cancer before and after chemoradiotherapy and compare the results. A number of 35 patients were irradiated by teleradiotherapy dose of 45 Gy in 25 fractions over 5 weeks to the pelvis and additional 20-24 Gy in 4-6 fractions were given by intracavitary HDR brachytherapy. Patients received 40 mg/m<sup>2</sup> of cisplatin once a week, which is a total of 4-6 cycles of cisplatin. Patients answered the questions in a form of a questionnaire specifically created for cervical cancer (EORTC-QLQ-Cx 24), for the period immediately before diagnosed cervical cancer (thus being a control group). They also answered the same questions for the period starting 12 months after the completion of concomitant chemoradiotherapy, and were an experimental group at the time. For the testing of statistical significance of differences among the examined groups parameter and non-parameter tests were used (the Wilcoxon signed ranks test and Student's t-test). The difference  $p < 0.05$  was considered statistically significant. Vaginal problems of patients after chemoradiotherapy were statistically reduced (44 versus 0;  $p < 0.0001$ ). There is no statistical significance in the vaginal function among the analyzed groups but weaker pain during intercourse was registered after chemoradiotherapy ( $p = 0.009$ ). After chemoradiotherapy, patients' vaginal function is extremely improved whereas there is no difference in the sexual function. Pain during intercourse is statistically reduced after chemoradiotherapy.

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KEY WORDS: sexual function, vaginal function, chemoradiotherapy, cervical cancer.

## INTRODUCTION

Cervical cancer is a serious health problem with approximately 500 000 women who develop this disease worldwide [1]. In the USA, there are 12 200 new patients every year, out of which 4 100 die [2]. The frequency ranges from 10-40 on 100 000 women in Europe and the USA and over 40 on 100 000 in some parts of Asia and South America [3]. In the Tuzla Canton, the incidence of cervical cancer for the year 2008 was 14/100 000 women aged 15 and above. There are many risk factors that are responsible for development of cervical cancer in fertile women such as: HPV infection, number of sexual partners, usage of contraception, existence of sexual infections, usage of tobacco, existence of genetic factor and etc. [4]. Cervical dysplasia, a premalignant lesion that can progress to cervical cancer, is caused primarily by a sexually transmitted infection with an oncogenic strain of the human papillomavirus (HPV). The combination of interferon and herbal therapy with B complex is effective, atraumatic

and simple non-surgical treatment of HPV infection. Since prospective efficacy trials will take several years to complete, considering alternative approaches is also worthwhile [5]. Concomitant chemoradiotherapy is a gold standard in the treatment of locally advanced disease stages [6]. 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 [7]. As the number of cervical cancer survivors increases, much attention should be paid to the quality of life of these patients. Sexual dysfunction, more than anything else, threatens the quality of life for patients who survived cervical cancer [8]. Therefore it is a matter of utmost importance to preserve their sexual health after cervical cancer [9]. As most studies had healthy women in a certain region as their control groups, this study's control group included the same women in the period before concomitant chemoradiotherapy and in that way we show the real effect of the therapy on sexual and vaginal function of women with cervical cancer. The aim of this study is to, by means of interview, evaluate vaginal and sexual function of patients with advanced cervical cancer before and after chemoradiotherapy and then compare them.

\* Corresponding author: Dženita Ljuca; University Clinical Centre Tuzla, Department of Gynaecology and Obstetrics, Univerzitetska 1, 75000 Tuzla, Bosnia and Herzegovina; Tel: ++ 387-061-168-808 Fax: ++387-35-320-601; e-mail: dzenita.ljuca@hotmail.com

## MATERIALS AND METHODS

### Patients

This retrospective-prospective study included patients treated against cervical cancer FIGO IIB stage by concomitant chemoradiotherapy. The research covered the patients in all age groups who were diagnosed this stage of the disease. The research included 35 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 12 months after the completion of concomitant chemo-radiotherapy, thus creating an experimental group. The answers were scored and by statistical data processing they were objectified in the form of results. The data about the patients treated against cervical cancer in the period 2006-2008 were taken from case histories and medical charts at the Gynecology and Obstetrics Clinic of the University Clinical Centre Tuzla. The patients were treated at the Clinical Centre of Sarajevo University, at the Oncology Clinic. All patients were irradiated to 40-46 Gy to the pelvis by the linear accelerator Siemens Primus with the irradiation energy of 6 MV and 18 MV and received intracavitary brachytherapy dosage of 20-24 Gy. Intracavitary brachytherapy was applied by a high dosage rate (HDR) with Ir192 by Varian Gammamed. Patients received 40 mg/m<sup>2</sup> of cisplatin once a week - a total of 4-6 cycles of cisplatin.

### Methods

Patients were surveyed with the questionnaires for the assessment of the vaginal and sexual function EORTC-QLQ-Cx24. Greimel et al. [10] developed the EORTC-QLQ-Cx24 questionnaire, modified for cervical cancer patients. The answers were scored 1 to 4. The scoring principle for the scales is the same for all scales: to estimate the average of item points in raw score scales and use a linear transformation to standardize the raw score so that scores range from 0 to 100. A high score for sexual function reflected a high level of sexual function. A high score of symptom scales for vaginal problems reflected a higher level of vaginal problems. The statistical analysis of the results standard methods of descriptive statistics have been used (arithmetic mean with the standard deviation and medians with the numerical range from minimum to maximum value). For the testing of statistical significance of differences among the examined groups parameter and non-parameter tests were used (the Wilcoxon signed ranks test and Student's t-test). Statistical hypotheses were tested at the significance level of  $\alpha = 0.05$ , i.e. the difference  $p < 0.05$  was considered statistically significant. Quickstat Statistical Software (version 1.0.0.88, Medical Computing) was used for the data analysis.

## RESULTS

A number of 35 patients with cervical cancer FIGO IIB stage have been questioned. An average age of the patients questioned is 54. For all patients, the pathohistological type of cervical cancer is planocellular cancer. Concomitant chemoradiotherapy lasted from 32 to 49 days in total. The results found for sexual function and vaginal problems for the patients questioned are given in Table 1. For patients after concomitant chemoradiotherapy, vaginal problems were statistically reduced (44 versus 0;  $p < 0.0001$ ). Statistically significant difference in the sexual function of the patients questioned has not been registered. A number of 14 patients (40%) were not intimate with their partners either before or after the irradiation.

**TABLE 1.** Sexual function and vaginal problems after concomitant chemoradiotherapy

Items	Before (35 patients)		After (35 patients)		<i>p</i>
	$\bar{X}$ ( $\sigma$ )	Me (range)	$\bar{X}$ ( $\sigma$ )	Me (range)	
Sexual function	37 (34)	50 (0-92)	40 (34)	58 (0-96)	0.35
Vaginal problems	46 (25)	44 (0-100)	6 (9)	0 (0-33)	< 0.0001

$\bar{X}$ -mean;  $\sigma$ -standard deviation; Me-median

The results of the evaluation of the sexual function of the patients before and after chemoradiotherapy by their age are shown in Table 2. Only two patients were under the age of 40 and they both had their sexual function preserved before and after chemoradiotherapy. There were two patients at the age of 71 and over, and they did not have any sexual activity either before or after the therapy. Statistically significant difference in the sexual function of the patients questioned has not been registered by age groups.

**TABLE 2.** The evaluation of the sexual function of patients by their age before and after concomitant chemoradiotherapy

Patients' age	NPWSA*	Before	After	<i>p</i>
		X ( $\sigma$ )	X ( $\sigma$ )	
41-50	3	50 (28)	49.7 (28)	0.42
51-60	5	34 (41)	34 (41)	1
61-70	4	27 (33)	38 (37)	0.25

NPWSA – A number of patients without sexual activity  
 $\bar{X}$ -mean;  $\sigma$ -standard deviation

The results of the individual vaginal function scales by the t-test are shown in Figure 1. The inner analysis of the individual sexual function scales by the t-test shows statistically reduced pain during intercourse ( $p = 0.009$ ) (Figure 2).

## DISCUSSION

The studies show that the sexual and vaginal function of cervical cancer survivors who were irradiated is lower than for the general female population, but the opinion regarding that

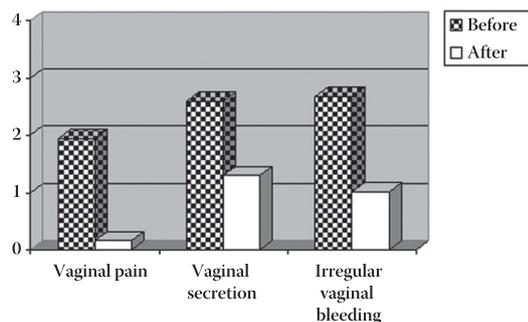


FIGURE 1. Vaginal function scales individually before and after concomitant chemoradiotherapy represented by the arithmetic means of the scored answers.

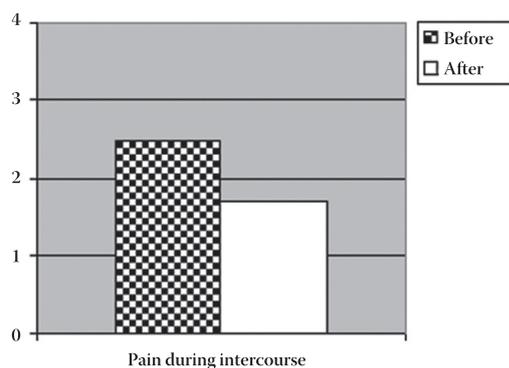


FIGURE 2. Pain during intercourse before and after concomitant chemoradiotherapy represented by the arithmetic means of the scored answers.

issue has still not been formed, mainly due to inappropriate methodology [11]. This study shows that vaginal problems for patients after irradiation are statistically reduced. Pain and irritation in vagina or vulva does not exist any more. Patients rarely have vaginal secretion and, as an important effect of chemoradiotherapy, there is no unusual vaginal bleeding. However, there is no significant difference in the sexual function of the patients questioned and 14 (40%) patients did not have intercourse before and after irradiation. Also, statistically significant difference in the sexual function of the patients questioned has not been registered by age groups. The question is here why the patients do not have better sexual function if vaginal function is normal. Some patients lost sexual desire after finding that they have cancer. The loss or decrease of sexual activities before the therapy was mainly caused by vaginal pain and bleeding, unpleasant vaginal secretion and the emotional stress. These results were confirmed in literature, the cancer diagnosis itself causes stress which affects the emotional status of woman and her partner. Psychological effect combined with somatic sensations of the disease causes the loss of interest in sex and the decrease of sexual activities [12]. These problems are no longer present after concomitant chemoradiotherapy but sexual function is not improved for various reasons. Patients fear of cancer remission after intercourse; a husband fears that he might hurt the patient "again" or that he might be secondary irradiated. Thus, significant sta-

tistical difference in sexual function has not been registered. A more detailed analysis of scales for sexual function shows that patients who had intercourse both before and after the therapy suffer less pain during intercourse or do not feel pain at all.

## CONCLUSION

Considering statistical data which show that patients after irradiation have less problems regarding pelvis pain, vaginal pain and bleeding and that they do not feel pain during intercourse, therefore, summarily, the vaginal function is better. However, no improvement of the sexual function has been registered. After radiotherapy patients need vaginal dilatation, which is yet another reason for the improvement of their sexual function. The fact that sexual dysfunction is a threat to the socio-psychological function of women along with these results, clearly indicate that a doctor should discuss this issue with his/her future patients more during the treatment, which would improve the sexual function of the patients and the quality of their lives as well. Also, there is a need for the study which would include a higher number of sexually active patients under the age of 40, since the data regarding this age group are somewhat scant.

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