Original article **UDC: 618.146-006:616.89-008.454**
doi: 10.5633/amm.2025.0307

THE OCCURRENCE OF DIFFERENT TYPES OF DEPRESSION IN PATIENTS WITH CERVICAL CANCER

Irena Conić[1,2], Slavica Stojnev[3,4], Suzana Tošić Golubović[5,6], Ivan Petković[1,2], Ana Cvetanović[1,2], Dane Krtinić[2,7], Milica Radić[1,2], Marijana Milović-Kovačević[8,9], Aleksandar Živadinović[10,11], Dušan Simić[10,12]

When a person is diagnosed with a severe and life-threatening disease, experiences sudden hospitalization, undergoes surgical intervention or faces other treatment options threatening their bio-psycho-social integrity, it can create a stressful situation that may result in an acute stress reaction or adjustment disorders.

The global aim of the research was to examine the impact of the type of cervical cancer therapy on the psychological status of patients and the occurrence of depression.

The basic principle of the research was a comparative analysis of the results obtained using instruments to assess the degree of depression in the experimental and control groups. Within the first experimental group, a comparison was made between patients who underwent surgery and postoperative chemoradiation. Within the second experimental group, a comparison was made between patients who did not undergo surgery, but received radical chemoradiation therapy. The following research instruments were used: semi-structured psychiatric interview, gynecological parameters—local findings and stage of the disease, the Hamilton scale for depression.

Univariate logistic regression analysis showed that patients before surgery (OR = 24.17; 95% PI: 4.81–121.57 and $p < 0.001$) and patients before radical chemoradiation (OR = 45.99; 95% PI: 8.70–243.15 and $p < 0.001$) had a significantly higher risk of depression than women from the control group.

Radical hysterectomy is accompanied by an increase in depression in the preoperative period as well as after surgical treatment. Radical chemoradiation leads to an increase in depression to a greater degree compared to radical hysterectomy in the period before and after the treatment.

Acta Medica Medianae 2025;64(3): 53–62.

Key words: *cervical cancer, depression, therapy*

[1]University of Niš, Faculty of Medicine, Department of Oncology, Niš, Serbia
[2]University Clinical Center Niš, Clinic of Oncology, Niš, Serbia
[3]University of Niš, Faculty of Medicine, Department of Pathology, Niš, Serbia
[4]University Clinical Center Niš, Center for Pathology, Niš, Serbia
[5]University of Niš, Faculty of Medicine, Department of Psychiatry with Medical Psychology, Niš, Serbia
[6]University Clinical Center Niš, Clinic for Psychiatry, Niš, Serbia
[7]University of Niš, Faculty of Medicine, Department for Pharmacology with Toxicology, Niš, Serbia
[8]University of Belgrade, Faculty of Medicine, Department of Oncology, Belgrade, Serbia
[9]Institute for Oncology and Radiology of Serbia, Belgrade, Serbia
[10]University of Niš, Faculty of Medicine, Department of Gynecology with Obstetrics, Niš, Serbia
[11]University Clinical Center Niš, Clinic of Gynecology and Obstetrics, Niš, Serbia
[12]Health Center Niš, Niš, Serbia

Contact: Irena Conić
81 Dr. Zorana Djindjića Blvd., 18000 Niš, Serbia
E-mail: irena.conic@medfak.ni.ac.rs

Introduction

Globally, cervical cancer is the fourth most common cancer in women, with around 660,000 new cases in 2022. In the same year, in low- and middle-income countries, about 94% of the 350,000 deaths were caused by cervical cancer (1). Cervical cancer has a good prognosis if diagnosed and treated at an early stage of the disease. A multidisciplinary team must examine the patient and determine the type of therapy for the patient, which can be surgery, radiotherapy, and systemic therapy. Also, psychological support is very important (2, 3). Genitals, along with secondary sex characteristics, denote the biological gender of an individual and gender identity is formed during the developmental process. Patients hospitalized for somatic illnesses may develop autonomic and emotional dysregulation as a consequence of numerous factors, including illness uncertainty, its course, therapy and outcome, dependency of care, as well

as accompanying physiological impairments of the somatic disease and its treatment. Just the information that a person is suffering from a severe and life-threatening disease, sudden hospitalization, surgical intervention and other treatment options threatening the bio-psycho-social integrity of an individual may pose a stressful situation that may result in acute stress reaction or adjustment disorders (4–9).

In addition to the described changes, hysterectomy triggers numerous penetrating fears related to injury and destruction, being placed in a dependent position, helplessness, fear of cancer, death, separation fear related to leaving a significant person, fear of losing sphincter control, also specific fears related to the impact of the operation on sexual functioning. Risk factors for the occurrence of depressive disorders in patients with cancer are: earlier mood disorders, alcoholism, advanced stage of cancer, the presence of inadequately controlled intense pain, the existence of a gross somatic disease or complication, and the use of chemotherapy known to cause depression. Hysterectomy leads to real losses (loss of organs, menstruation, and ability to give birth) but also symbolic losses in the field of social, family, sexual and professional functioning. All kinds of loss, and this one as well, should be acknowledged, pain should be shared with the right people around you, one should allow the grief run its course and prevent depression onset after surgery. A significant mood shift, such as depression, usually occurs on postoperative days 4 or 5, which can be understood as a part of the grieving process referred to as anticipatory grief (9–15).

Aim

The global aim of the research was to examine the impact of the type of cervical cancer therapy on the psychological status of patients and the occurrence of depression. Special attention was paid to the impact of surgical treatment on patients who underwent surgery compared to patients who did not undergo surgery for medical and personal reasons. According to data from the literature on possible types of psychological reactions in patients with cervical cancer, the degree of depression related to the type of therapeutic procedure was analyzed.

Special attention was paid to the possible influence of control variables, age, education, socio-economic status, marital status, personality (extroversion, neuroticism, introversion) of constitutive factors related to the respondents: first menstruation, cycle—regular, irregular, prolonged, shortened, number of births, number of abortions, menopause, year of first intercourse, number of partners until diagnosis, infections and whether they were treated, habits—smoking, alcohol, using contraceptives, going to the gynecologist, colposcopic examination, Papanicolaou test.

Methods

The basic principle of the research is a comparative analysis of the results obtained using instruments to assess the degree of depression in the experimental and control groups. Within the first experimental group, a comparison was made between patients who underwent surgery and postoperative chemoradiation. Within the second experimental group, a comparison was made between patients who did not undergo surgery, but received radical chemoradiation.

Experimental group I consisted of 30 patients who underwent surgery and in whom cytostatic monochemotherapy with cisplatin in a dose of 40 mg/m^2 was applied along with postoperative radiation therapy. Experimental group II consisted of 30 patients who did not undergo surgery and in whom cytostatic monochemotherapy with cisplatin, also at a dose of 40 mg/m2, was applied along with radical combined radiation therapy. The control group consisted of 30 healthy subjects.

Criteria for entering the research were: age of 30–60 years, completed minimum secondary education, marital status—married, presence of malignant lesions on the cervix, absence of serious somatic diseases, and absence of serious psychiatric disorders treated in hospital in personal history. The research was conducted in the Gynecology and Obstetrics Clinic and the Oncology Clinic of the University Clinical Center of Niš.

The following research instruments were used: semi-structured psychiatric interview, gynecological parameters—local findings and stage of the disease—and Hamilton scale for depression. The semi-structured psychiatric consisted of: 1. A list of general socio-demographic and medical history data that includes: first and last name, age, marital status, and education. 2. Psychosocial functioning. Gynecological parameters included: age at the time of first menarche, cycle duration, period between cycles, age at first birth, number of births, number of abortions, year of first sexual intercourse, number of sexual partners, infections during life, visits to the gynecologist, type of gynecological procedures performed, and reviews.

The Hamilton scale for depression was constructed due to the need to standardize the phenomenology of the depressive syndrome and to assess the severity of the depressive disorder. The scale is used in clinical and pharmacological studies. It is suitable for quantifying the intensity of depressive symptoms, and it is also a standard for evaluating the validity of other scales in measuring depression. The basic characteristics of the scale are that it is not too long, it covers the most important symptoms for assessing depression, and it is reliable even when used by two examiners. The Hamilton depression assessment scale belongs to the group of individual scales and is completed by the examiner themselves. It is used in two original versions, one

with 21 items and the other with 17, with the following scoring system: 0–7 no depression, 8–15 minor depression, 16 and over, major depression. The total score of the Hamilton scale (21 items) determines the severity of depression as follows—less than 8, suggests no depression, 17–24 indicates moderate depression in patients treated in outpatient conditions, and over 24 signifies severe depression, often associated with hospitalized patients. The absence of depression can be assessed if the total score at the end of treatment or assessment is reduced by 50% from the initial score. The scale is reliable, especially for average scores. In order to properly fill out this instrument, it is necessary to strictly adhere to the instructions that define the way of conducting the interview, the questions from the scale and the scoring of individual answers.

The Excel program from the Microsoft Office program package was used for entering, ranking, grouping, tabular and graphical presentation of data. Calculations were made using the SPSS program and the StatCalc program from the EPI-INFO program package.

Results

In the first group, the average value of the Hamilton scale for depression before therapy was 6.73 ± 3.73, then it significantly increased 3 months after surgery to 9.47 ± 4.34 (ANOVA and Dunnett's test: $p = 0.034$), and 6 months after surgery increased significantly once and reached a value of 12.33 ± 4.31 (ANOVA and Dunnett's test: $p = 0.038$). In the second group of patients, the average value of the Hamilton depression scale also increased significantly, from 9.50 ± 4.10 before the start of therapy to 12.53 ± 4.40 three months later (ANOVA and Dunnett's test: $p = 0.023$) and 16.23 ± 3.48 six months later (ANOVA and Dunnett's test: $p = 0.002$). In the control group, the average value of the Hamilton depression scale was 3.00 ± 2.39. At the first test, the value of the depression scale in patients assigned to radical chemoradiation was statistically significantly higher than in patients assigned to surgery (ANOVA and Dunnett's test: $p = 0.025$) and in the control group (ANOVA and Dunnett's test: $p < 0.001$).

Patients scheduled for surgery had a significantly higher average value of the depression scale than subjects from the control group (ANOVA and Dunnett's test: $p < 0.001$). When retested after three and six months, the value in patients who underwent radical chemoradiation remained significantly higher compared to women who underwent surgery (Mann–Whitney U test: $Z = 3.66$, i.e., $Z = 4.29$ and $p < 0.001$) (Table 1).

The average values of the Hamilton scale for depression in patients who underwent radical chemoradiation increased to a greater degree than in patients who underwent surgery, but the differences between the compared groups in this sample were not statistically significant (Table 2).

Table 1. Average values of the Hamilton scale for depression (Xsr ± SD), by groups and time of testing

Group	Testing time			Comparison by test time (Dunnett's test)
	Before therapy	After 3 months	After 3 months	
Patients who underwent surgery	6.73 ± 3.73	9.47 ± 4.34	12.33 ± 4.31	I vs. II: p = 0.034 I vs. III: p < 0.001 II vs. III: p = 0.038
Patients who underwent radical chemoradiation	9.50 ± 4.10	12.53 ± 4.40	16.23 ± 3.48	I vs. II: p = 0.023 I vs. III: p < 0.001 II vs. III: p = 0.002
Control group	3.00 ± 2.39	...	...	-
Group comparison	Dunnett's test I vs. II: p = 0.025 I vs. III: p < 0.001 II vs. III: p < 0.001	Mann–Whit ney U test Z = 3.66, p < 0.001	Mann–Whitney U test Z = 4.29, p < 0.001	

Table 2. Comparison of the resulting differences in the values of the Hamilton scale for depression within groups (Xsr ± SD), by the time of testing

Group	Differences between average scale values		
	Before therapy vs. after 3 months	After 3 months vs. after 6 months	Before therapy vs. after 6 months
Patients who underwent surgery	2.73 ± 2.86	2.87 ± 2.78	5.60 ± 3.52
Patients who underwent radical chemoradiation	3.03 ± 2.57	3.70 ± 3.24	6.73 ± 3.62
Mann–Whitney U test	n.s.	n.s.	n.s.

Moderate depression according to the Hamilton scale was present before the start of therapy in 60.00% of patients who underwent surgery, and severe depression in 3.33% of cases. Three months after the operation, the prevalence of moderate depression in this group rose to 63.33%, and severe depression to 13.30%. After six months, the frequency of moderate depression remained at the same level, and the frequency of severe depression rose to 20.00%. The Friedman test showed a significant difference in the representation of different degrees of depression between repeated tests (χ^2 = 15.93 and p < 0.001).

In the group of patients who underwent radical chemoradiation, moderate depression was present in a slightly higher percentage (66.70%) before the start of therapy, as well as pronounced (10.00%). After three months, the prevalence of moderate depression decreased to 63.30%, while the prevalence of severe depression increased to 20.00%. After six months, the share of women with moderate depression decreased to 53.30%, while the share of those with severe depression increased to 43.30%. In this group as well, Friedman's test showed a significant difference in the representation of different degrees of depression between repeated tests (χ^2 = 22.69 and p < 0.001).

There were no significant differences between the prevalence of certain degrees of depression in the group of patients who underwent surgery and patients who underwent radical chemoradiation before the start of therapy and after three months. After 6 months, the proportion of women with severe depression in the second group was more than twice as high as in the first group (43.30%:20.00%). The Mantel–Haenszel Chi-square test confirmed that this difference in the prevalence of severe depression was at the limit of statistical significance among the examined groups (χ^2 = 3.71 and p = 0.054).

In the control group, moderate depression was present in 6.70% of the subjects, and severe depression was not registered. The percentage of women without depression in this group was significantly higher than in the first group (χ^2 = 20.8 and p < 0.001) and second group (χ^2 = 29.7 and p < 0.001), while the percentage of women with moderate depression in the control group was significantly lower than in patients who underwent surgery (χ^2 = 18.9 and p < 0.001) and radical chemoradiation (χ^2 = 22.9 and p < 0.001) (Table 3).

Table 3. Representation of certain degrees of depression by groups and time of testing

Group	Degree of depression	After 3 months			Comparison by test time (Friedman's test)
		Before therapy	After 3 months	After 6 months	
Patients who underwent surgery	Without depression	11 (36.70%)	7 (23.30%)	5 (16.70%)	χ^2 = 15.93 p < 0.001
	Moderate	18 (60.00%)	19 (63.30%)	19 (63.30%)	
	Severe	1 (3.30%)	4 (13.30%)	6 (20.00%)	
Patients who underwent radical chemoradiation	Without depression	7 (23.30%)	5 (16.70%)	1 (3.30%)	χ^2 = 22.69 p < 0.001
	Moderate	20 (66.70%)	19 (63.30%)	16 (53.30%)	
	Severe	3 (10.00%)	6 (20.00%)	13 (43.30%)	
Control group	Without depression	28 (93.30%)	...	...	-
	Moderate	2 (6.70%)	...	...	-
	Severe	-	...	...	-

Comparison by groups (Mantel–Haenszel or Fisher 's test)	Without depression	I vs. II: n.s. I vs. III: χ^2 = 20.8 and p < 0.001 II vs. III: χ^2 = 29.7 and p < 0.001	n.s.	n.s.	
	Moderate	I vs. II: n.s. I vs. III: χ^2 = 18.9 and p < 0.001 II vs. III: χ^2 = 22.9 and p < 0.001	n.s.	n.s.	
	Severe	I vs. II: n.s. I vs. III: n.s. II vs. III: n.s.	n.s.	χ^2 = 3.71 p = 0.054	

Table 4. Correlation between the values of the Hamilton scale for depression and individual control and constellation factors at the first test, results of univariate logistic regression analysis

Factor		OR	95% IP		P
			lower	upper	
Group	Control	1.00	Reference		
	Before surgery	24.17	4.81	121.57	p < 0.001
	Before HRT	45.99	8.70	243.15	p < 0.001
Age		1.00	0.92	1.08	0.96
School education	Secondary	3.32	0.83	13.21	0.09
	High school	1.00	Reference		
Menarche (year)		1.34	0.98	1.83	0.07
Cycle duration (day)		0.87	0.61	1.23	0.43
Period between cycles (day)		0.98	0.83	1.16	0.84
Age at first birth (year)		0.96	0.86	1.09	0.61
Number of births		1.63	0.89	2.98	0.11
Number of miscarriages		1.05	0.86	1.28	0.58
First sexual intercourse (year)		0.97	0.77	1.24	0.86
Number of sexual partners		0.60	0.34	1.08	0.09
Smoking status	Smoker	0.81	0.35	1.89	0.64
	Non smoker	1.00	Reference		
Infections	Yes	0.36	0.15	0.86	0.02
	No	1.00	Reference		
Contraceptions	Preservative	0.15	0.01	1.33	0.09
	Pills	1.71	0.66	4.43	0.26
	No contraceptions	1.00	Reference		
Visits to gynecologist	Twice a year	1.00	Reference		
	Once a year	2.00	0.17	22.94	0.58
	Once in 2 years	3.63	0.35	37.44	0.28
	More than 5 years	7.74	0.84	71.29	0.07
Medical examinations	Never	1.00	Reference		
	Once	0.96	0.33	2.81	0.95
	Once a year	0.11	0.01	1.14	0.07
	Twice a year	0.13	0.02	0.71	0.02
	Periodically	1.14	0.28	4.54	0.85

Table 5. Correlation between the values of the Hamilton scale for depression and individual control and constellation factors at the first test, results of multivariate logistic regression analysis

Factor		OR	95% IP		P
			Lower	Upper	
Group	Control	1.00	Reference		
	Before surgery	31.07	5.64	170.96	p < 0.001
	Before HRT	52.19	9.17	296.84	p < 0.001
Infections	Yes	0.26	0.08	0.84	0.02
	No	1.00	Reference		

Univariate logistic regression analysis showed that patients before surgery (OR = 24.17; 95% PI: 4.81–121.57 and p < 0.001) and patients before radical chemoradiation (OR = 45.99; 95% PI: 8.70–243.15 and p < 0.001) had significantly higher risk of depression than women from the control group (Table 4).

Subjects who underwent examinations once every two years had a significantly lower risk of developing depression than women who never had an examination (OR = 0.13; 95% CI: 0.02–0.71 and p = 0.02).

The multivariate regression model included all factors that the univariate logistic regression analysis showed to influence the onset of depression with an estimation error probability of less than 0.1 (10%), i.e., group, schooling, age of first menstruation, number of sexual partners, infections, use of contraception, visits to gynecologist and examinations (Table 4).

By step-by-step backwards (Backwards Wald) from the multivariate model, all those factors that did not show a significant influence on the occurrence of depression were excluded, so in the last step, the following were defined as statistically significant: group and previous infections. In patients before surgery, the risk of developing depression was 31 times higher than in the control group (OR = 31.07; 95% CI: 5.64–170.96 and p < 0.001), while in patients before radical chemoradiation, the risk was even 52 times higher than in women in the control group (OR = 52.19; 95% CI: 9.17–296.84 and p < 0.001) (Table 5). In subjects who had infections, the risk of depression was 4 times lower than in those without infections (OR = 0.26; 95% CI: 0.08–0.84 and p = 0.02) (Table 5).

Bleeding during intercourse significantly increases the risk of depression (OR = 3.42; 95% CI: 1.33–8.76), as well as pain (OR = 9.75; 95% CI: 3.54–26.82) and irregular menstrual bleeding (OR = 3.42; 95 % IP: 1.33–8.76). The time to see a doctor, the attitude of the subjects towards the disease and the stage of the disease have not been proven as factors that significantly influence the occurrence of depression before the start of therapy.

During the second and third testing, none of the control, constellation and clinical factors, nor group affiliation, significantly impacted changes in the level of depression (no depression/moderate or severe depression). In the second test, only pain caused an increased risk for the occurrence of moderate or severe depression, but at the level of the probability of an error of the statement less than 0.1 or 10% (OR = 3.65; 95% IP: 0.96–13.90 and p = 0.058) (Table 6).

Table 6. Correlation between Hamilton depression scale values and clinical factors at the first test, results of univariate logistic regression analysis

Factor		OR	95% IP		P
			Lower	Upper	
First symptom	Bleeding during sexual intercourse	3.42	1.33	8.76	0.01
	Acyclic bleeding	2.71	0.65	11.23	0.17
	Increased secretion	0.48	0.20	1.11	0.09
	Painful	9.75	3.54	26.82	p < 0.001
	Irregular menstrual bleeding	4.32	1.72	10.82	0.002
Time to see a doctor longer than 6 months		0.76	0.22	2.59	0.67
Talk openly about the disease		1.36	0.42	4.32	0.60
Stage of disease	Ib	1.00	Reference		
	IIb	1.73	0.44	6.72	0.42
	IIIb	3.18	0.59	17.08	0.18

Discussion

Cancer is related to depression, which is a pathological affective response to the loss of normality as a result of cancer diagnosis, treatment or forthcoming complications. Depression presents itself with symptoms of sadness, feelings of fear and panic and longing for the lost object (organ); it is accompanied by a dysfunction increase, feelings of worthlessness and low self-esteem, suicidal preoccupations or inability to accept anything with pleasure (16–19). In our research, a higher percentage of patients treated with radical chemoradiation openly talk about their illness, but the difference compared to patients who underwent surgery in the examined sample is not statistically significant. In patients who were surgically treated, the average value of the Hamilton depression scale before therapy was 6.73 ± 3.73, then it increased significantly three and six months after surgery. The average value of the Hamilton depression scale also increased significantly in patients who underwent radical chemoradiation, from 9.50 ± 4.10 before the start of the therapy, after three and six months after the completion of the therapy. At the first test, the value of the depression scale in patients who were assigned to radical chemoradiation was statistically significantly higher than in patients who were assigned to surgery, as well as in the control group, which agrees with data from the literature (20). When retested, the value in patients who underwent radical chemoradiation

remained significantly higher than in patients who underwent surgical treatment.

In a study by Aziza et al., the HADS measurement showed that patients with cervical cancer had mild and severe levels of anxiety and depression. The results of this study also confirmed that emotional functioning, fatigue and insomnia were the main predictors of anxiety and depressive disorders in women with cervical cancer (4). Zhao et al. showed in their study that the prevalence of anxiety and depression was 44.9% and 36.1% in cervical cancer patients who underwent surgery. Compared to healthy individuals, patients with cervical cancer had a higher prevalence and worse severity of anxiety and depression. They also stated that the presence of cervical cancer and the fear of recurrence of cervical cancer may cause a severe psychological burden and worsening anxiety/depression in patients with cervical cancer who have undergone surgery. Impairment of physical and social functions, financial burden of treatment, and psychological stress of surgery may also lead to the prevalence and severity of anxiety/depression in cervical cancer patients undergoing surgery. Their study found that diabetes, FIGO stage II were independent predictors for a higher risk of anxiety, and diabetes and lymph node metastases were independent predictors for an increased risk of depression in cervical cancer patients undergoing surgery. It has been shown that a higher stage of the disease can cause a higher level of anxiety and depression (21). In accordance with the study by Zhao and our study, Tosic Golubovic et al. showed that depression and anxiety scores were relatively high among a group of patients with cervical cancer. The levels of anxiety and depression severity were different between the studied groups and FIGO stages. In the group with a more advanced FIGO stage of the disease, depression scores were higher (22). Environmental factors play a role in determining whether a vulnerable woman may develop depression major or generalized anxiety disorder, meaning that there is an environmental factor (not related to genetic factors) that is only depressogenic or only anxiogenic. Anxiety and depression are common comorbidities in cancer patients and may affect patients' survival. Providing appropriate information and social support may play a role in patients' psychological well-being, but different patients may favour different types of information and lifestyles. In assessing clinical features of depression in patients with somatic diseases, it is very important to take the full medical history that indicates the presence of depression symptoms, excludes the presence of some other psychiatric disorder, as well as the presence of psychosocial factors associated with depression (23–28).

The result of the Dhakal et al. (29) review showed that various methods (such as exercise, telephone counseling, educational brochure, family education, consultation sessions, lecture presentations, self-study package, face-to-face interviews, medication, psychotherapy, nurse support) can contribute to the effectiveness in solving the psychological support care needs "anxiety and depression" of cervical cancer patients. Very often, due to the lack of understanding of the situation and condition female patients face, there are wrong interpretations that trigger unnecessary fear, suspicion and premonition. Patients with anxious personality traits were greatly correlated with preoperative anxiety onset, but also with ongoing anxiety after hospital discharge, along with increased depression, fatigue, low frustration tolerance threshold, resulting in frequent visits to the doctor. Assessment measures conducted in studies (23, 30–32) determined the range of emotional disturbances. The results of these studies show that simply talking with patients may be useful in revealing women at risk of anxiety, depression, or both.

Conclusion

Radical hysterectomy is accompanied by an increase in depression in the preoperative period as well as after the surgical treatment. Somatic disorder and hospitalization are crisis events that trigger the feeling of helplessness, risk of loss and passive position, as well as adjustment disorder with dominant depressed mood as a clinical manifestation. Radical chemoradiation leads to a greater increase in depression compared to radical hysterectomy in the period before and after the treatment.

References

1. Filho AM, Laversanne M, Ferlay J, Colombet M, Pineros M, Znaor A, et al. The GLOBOCAN 2022 cancer estimates: Data sources, methods, and a snapshot of the cancer burden worldwide. Int J Cancer 2024;156(7):1336-46. [CrossRef][PubMed]
2. Li H, Wu X, Cheng X. Advances in diagnosis and treatment of metastatic cervical cancer. J Gynecol Oncol 2016;27(4):e43. [CrossRef][PubMed]
3. Mayadev JS, Ke G, Mahantshetty U, Pereira MD, Tarnawski R, Toita T. Global challenges of radiotherapy for the treatment of locally advanced cervical cancer. Int J Gynecol Cancer 2022;32(3):436-45. [CrossRef][PubMed]
4. Azizi A, Achak D, Boutib A, Chergaoui S, Saad E, Hilali A, et al. Association between cervical cancer-related anxiety and depression symptoms and health-related quality of life: A Moroccan cross-sectional study. Clinical Epidemiology and Global Health 2023;22:101328. [CrossRef]
5. Mantegna G, Petrillo M, Fuoco G, Venditti L, Terzano S, Anchora LP, 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. [CrossRef][PubMed]
6. Krebber AMH, Buffart LM, Kleijn G, Riepma IC, de Bree R, Leemans CR, et al. Prevalence of depression in cancer patients: a meta-analysis of diagnostic interviews and self-report instruments. Psycho Oncol 2014;23(2):121–30. [CrossRef][PubMed]
7. Lee Y, Lim MC, Kim SI, Joo J, Lee DO, Park SY. Comparison of quality of life and sexuality between cervical cancer survivors and healthy women. Cancer Res Treat 2016;48(4):1321–9. [CrossRef][PubMed]
8. Conic I, Miljkovic S, Tosic-Golubovic S, Stanojevic Z, Milenkovic D, Djordjevic B, et al. Anxiety levels related to the type of therapy for cervical cancer. Cent Eur J Med 2012;7:490-6. [CrossRef]
9. Conic I, Stanojevic Z, Dedovic I, Lilic G. Anxiety and depression in patients suffering from cervical cancer estimated before surgery. Acta Medica Medianae 2008;47:49-53.
10. Bahri N, Tohidinik HR, Fathi Najafi T, Larki M, Amini T, Askari Sartavosi Z. Depression Following Hysterectomy and the Influencing Factors. Iran Red Crescent Med J 2016;18(1):e30493. [CrossRef][PubMed]
11. Choi HG, Rhim CC, Yoon JY, Lee SW. Association between hysterectomy and depression: a longitudinal follow-up study using a national sample cohort. Menopause 2020;27(5):543-9. [CrossRef][PubMed]
12. Wang F, Li CB, Li S, Li Q. Integrated interventions for improving negative emotions and stress reactions of young women receiving total hysterectomy. Int J Clin Exp Med 2014;7(1):331–6. [PubMed]
13. Alipour A, Pour Y. Effect of cognitive behavioral therapy in hastening recovery of women after hysterectomy surgery. J Behav Sci 2010;4(2):91–5.
14. Li LJ, Chen Q, Zhang N, Yao X, Wang CX. Use of antidepressants following hysterectomy with or without oophorectomy: A national sample in the US. Maturitas 2023;167:32-8. [CrossRef][PubMed]
15. Kain ZN, Sevarino F, Alexander GM, Pincus S, Mayes LC. Preoperative anxiety and postoperative pain in women undergoing hysterectomy. J Psychosom Res 2000;49(6):417–22. [CrossRef][PubMed]
16. Yi Wu C, Chan TF , Shi HY, Kuo YL. Psychiatric problems of anxiety and depression disorder are associated with medical service utilization and survival among patients with cervical cancer. Taiwan J Obstet Gynecol 2021;60(3):474-9. [CrossRef][PubMed]
17. Carlson LE, Bultz BD. Benefits of psychosocial oncology care: improved quality of life and medical cost offset. Health Qual Life Outcome 2003;1:8. [CrossRef][PubMed]
18. Lemogne C, Niedhammer I, Khlat M, Ravaud JF, Guillemin F, Consoli SM, et al. Gender differences in the association between depressive mood and mortality: a 12-year follow-up population-based study. J Affect Disord 2012;136(3):267-75. [CrossRef][PubMed]
19. Pinquart M, Duberstein PR. Depression and cancer mortality: a meta-analysis. Psychol Med 2010;40(11):1797-810. [CrossRef][PubMed]
20. Vistad I, Fossa SD, Kristensen GB, Dahi AA. Chronic fatigue and its correlates in long-term survivors of cervical cancer treated with radiotherapy. BJOG 2007;114(9):1150-8. [CrossRef][PubMed]
21. Zhao H, Zhao Z, Chen C. Prevalence, risk factors and prognostic value of anxiety and depression in cervical cancer patients underwent surgery. Transl Cancer Res 2020;9(1):65-74.[CrossRef][PubMed]
22. Tosic Golubovic S, Binic I, Krtinic D, Djordjevic V, Conic I, Gugleta U, et al. Risk Factors and Predictive Value of Depression and Anxiety in Cervical Cancer Patients. Medicina (Kaunas) 2022;58(4):507. [CrossRef][PubMed]
23. Peterson RW, Graham G, Quinlivan JA. Psychological changes after a gynecologic cancer. J Obstet Gynaecol Res 2005;31(2):152-7. [CrossRef][PubMed]
24. Vaz AF, Pinto-Neto AM, Conde DM, Costa-Paiva L, Moralis SS, Esteves SB. Quality of life of women with gynecologic cancer: associated factors. Arch Gynecol Obstet 2007;276(6):583-9. [CrossRef][PubMed]
25. Awadalla AW, Ohaeri JU, Gholoum A, Khalid AO, Hamad HM, Jacob A. Factors associated with quality of life of outpatients with breast cancer and gynecologic cancers and their family caregivers: a controlled study. BMC Cancer 2007;7:102. [CrossRef][PubMed]
26. Mendlowicz MV, Stein MB. Quality of life in individuals with anxiety disorders. Am J of Psychiatry 2000;157:669-82. [CrossRef][PubMed]

27. Distefano M, Riccardi S, Capelli G, Costantini B, Petrillo M, Ricci C, et al. Quality of life and psychological distress in locally advanced cervical cancer patients administered pre-operative chemoradiotherapy. Gynecol Oncol 2008;7:25-9. [CrossRef][PubMed]
28. Shyu IL, Hu LY, Chen YJ, Wang PH, Huang BS. Risk factors for developing depression in women with cervical cancer: a nationwide population-based study in Taiwan. Int J Womens Health 2019:11:135-41. [CrossRef][PubMed]
29. Dhakal K, Chen C, Wang P, Faustine Mboineki J, Adhikari B. Existing psychological supportive care interventions for cervical cancer patients: a systematic review and meta-analysis. BMC Public Health 2024;24(1):1419. [CrossRef][PubMed]
30. McQuellon RP, Wells M, Hofman S, Craven KB, Russel KG, Gruz J. Reducing distress in cancer patients with an orientation program. Psycho-Oncology 1998;7:207-17. [CrossRef][PubMed]
31. Kelly D, Campbell P, Torrens C, Charalambous A, Östlund U, Eicher M, et al. The effectiveness of nurse-led interventions for cancer symptom management 2000–2018: a systematic review and meta-analysis. Heal Sci Rev 2022;4:100052. [CrossRef]
32. Linden AH, Hönekopp J. Heterogeneity of research results: a new perspective from which to assess and promote progress in psychological science. Perspect Psychol Sci 2021;16(2):358–76. [CrossRef][PubMed]

Originalni rad **UDC: 618.146-006:616.89-008.454**
doi: 10.5633/amm.2025.0307

POJAVA RAZLIČITIH VRSTA DEPRESIJE KOD PACIJENTKINJA SA KARCINOMOM GRLIĆA MATERICE

Irena Conić[1,2], Slavica Stojnev[3,4], Suzana Tošić Golubović[5,6], Ivan Petković[1,2], Ana Cvetanović[1,2], Dane Krtinić[2,7], Milica Radić[1,2], Marijana Milović Kovačević[8,9], Aleksandar Živadinović[10,11], Dušan Simić[10,12]

[1]Univerzitet u Nišu, Medicinski fakultet, Katedra Onkologija, Niš, Srbija
[2]Univerzitetski klinički centar Niš, Klinika za onkologiju, Niš, Srbija
[3]Univerzitet u Nišu, Medicinski fakultet, Katedra Patologija, Niš, Srbija
[4]Univerzitetski klinički centar Niš, Klinika za patologiju, Niš, Srbija
[5]Univerzitet u Nišu, Medicinski fakultet, Katedra Psihijatrija sa medicinskom psihologijom, Niš, Srbija
[6]Univerzitetski klinički centar Niš, Klinika za psihijatriju, Niš, Srbija
[7]Univerzitet u Nišu, Medicinski fakultet, Katedra Farmakologija sa toksikologijom, Niš, Srbija
[8]Univerzitet u Beogradu, Medicinski fakultet, Katedra za onkologiju, Beograd, Srbija
[9]Institut za onkologiju i radiologiju Srbije, Beograd, Srbija
[10]Univerzitet u Nišu, Medicinski fakultet, Katedra Ginekologija sa akušerstvom, Niš, Srbija
[11]Univerzitetski klinički centar Niš, Klinika za ginekologiju i akušerstvo, Niš, Srbija
[12]Dom zdravlja Niš, Niš, Srbija

Kontakt: Irena Conić
Bulevar dr Zorana Đinđića 81, 18000 Niš, Srbija
E-mail: irena.conic@medfak.ni.ac.rs

Informacija da osoba boluje od teške bolesti koja je opasna po život, iznenadna hospitalizacija, hirurška intervencija i druge mogućnosti lečenja koje mogu ugroziti biopsihosocijalni integritet pojedinca predstavljaju stresnu situaciju koja može dovesti do akutne reakcije na stres ili poremećaja prilagođavanja.

Globalni cilj ovog istraživanja bio je da se ispita uticaj vrste terapije karcinoma grlića materice na psihički status pacijentkinja i pojavu depresije.

Osnovni princip istraživanja bila je komparativna analiza rezultata dobijenih korišćenjem instrumenata za procenu stepena depresije u eksperimentalnoj i kontrolnoj grupi. U okviru prve eksperimentalne grupe izvršeno je poređenje pacijentkinja koje su podvrgnute operaciji i postoperativnoj hemoradijaciji. U okviru druge eksperimentalne grupe urađeno je poređenje pacijentkinja koje nisu bile operisane, ali su bile podvrgnute radikalnoj hemoradijaciji. Korišćeni su sledeći instrumenti istraživanja: polustrukturirani psihijatrijski intervju, ginekološki parametri (lokalni nalazi i stadijum bolesti) i Hamiltonova skala za depresiju.

Univarijantna logistička regresiona analiza pokazala je da je kod pacijentkinja pre operacije (OR = 24,17; 95% PI: 4,81–121,57 i p < 0,001) i kod pacijentkinja pre radikalne hemoradijacije (OR = 45,99; 95% PI: 8,70–243,15 i p < 0,001) postojao značajno veći rizik od razvoja depresije nego kod pacijentkinja iz kontrolne grupe.

Radikalna histerektomija je praćena porastom depresivnosti i u preoperativnom periodu i nakon operativnog lečenja. Radikalna hemoradijacija dovodi do povećanja depresivnosti u većem stepenu nego radikalna histerektomija i pre i posle tretmana.

Acta Medica Medianae 2025; 64(3): 53–62.

***Ključne reči**: karcinom grlića materice, depresivnost, terapija*