Original Article

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Influence of Depressive Disorders on the Results of Surgical Treatment in Patients with Chronic Suppurative Otitis Media

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Abstract

Background: The aim of this study was to determine whether preoperative depressive symptoms can affect the quality of life (QoL) after middle ear surgery in patients with chronic suppurative otitis media (CSOM). **Methods:** This study was conducted on 80 patients with CSOM, who were operated on for CSOM, in the preliminary and postoperative period who completed the specific COMOT-15 questionnaire and the PHQ-D depression questionnaire. **Results:** After surgical treatment of CSOM, total COMOT-15 score improved significantly ($p < 0.001$). The data of patients without depressive symptoms were significantly better when questioned according to COMOT-15 ($P < 0.01$) after surgery, while the depressive state showed significantly low results ($p < 0.001$). Preoperative depression is a significant predictive factor for QoL in patients with CSOM. **Conclusion:** This should be considered during patient selection in order to provide more appropriate preoperative counseling.

Keywords: Depression, tympanoplasty, cholesteatoma, quality of life assessment, middle ear reconstruction.

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Introduction

Chronic otitis media is a common disease that affects 0.45-2.6% of the population.[1,2] Patients with chronic suppurative otitis media (CSOM) suffer from frequent suppuration, pain and hearing loss; due to great communication problems, this leads to social and emotional limitations. In addition, CSOM leads to restrictions in daily life, as well as to frequent visits to medical institutions.[3–6] Currently, health-related quality of life (QoL) has become an important parameter in a patient's life. The result of QщL indicators even after surgical treatment on the middle ear is relevant.[7] Previous research has mainly focused on the development and validation of QoL-related questionnaires, as well as the study of factors affecting their performance.[3,5,8–11] Depression has long been associated with hearing disorders.[12–14] However, the coexistence of mood disorders in patients with CSOM was analyzed in only a few studies.[15,16] In particular, research in orthopedics and pain therapy has demonstrated that patients with mental health disorders were associated with less postoperative improvement.[17,18] According to some authors, it has been reported that patients with anxiety and depression after surgery were noted less beneficial than others without a depressive state.[19,20] Given that such mood affects the perception of chronic disease, depressive disorders may have a relationship between symptoms and a decrease in QoL in patients with CSOM. As healthcare continues to move towards evidence-based medicine, surgeons must identify and analyze the factors that influence treatment outcomes. Understanding what influences surgical outcomes can be achieved by surgeons through the correct selection of patients in the preoperative period and their correct preparation.

The purpose of study was to determine whether preoperative depressive symptoms can affect the quality of life (QoL) after middle ear surgery in patients with chronic suppurative otitis media (CSOM).

Materials and Methods

We studied 80 patients with CSOM (with or without cholesteatoma or without). Preoperative assessment of QoL and psychological state of the patient was carried out 1 day before surgery. The indices were re-evaluated 6 months

after the operation. Postoperative assessment included QoL measurement, screening for the presence and severity of depression, and tonal audiometry.

Surgical technique: A retroaricular incision was made in all patients. The temporal fascia was used for tympanoplasty. In patients with cholesteatoma, the first stage was sanitizing, followed by reconstructive surgery. For ossiculoplasty, titanium full and partial prostheses (Germany) were used. The assessment of QoL was carried out using a specific questionnaire for CSOM Test 15 (COMOT-15) in Uzbek. COMOT-15 was previously confirmed in Uzbek.[1] The questionnaire has 3 sections: "Ear symptoms" (1-6), "Auditory function" (7-9) and "mental health" (10-13). From the above questions, the overall score was determined (subjects 1-13). To identify the depressive state in patients, the Patient Health Questionnaire (PHQ) questionnaire was used.[3] With its help, the severity of depression was assessed. It is designed to diagnose mental disorders for primary care using diagnostic criteria from the American Psychiatric Association's fourth edition Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). The questionnaire includes two questions, it is compact and does not require time-consuming filling in. It allows screening for depression; Currently, the questionnaire has been translated into more than 80 languages and is successfully used in scientific research and clinical practice by doctors from many countries of the world. PHQ-2 Test: In the past 2 weeks, how often have you had any of the following problems? Not at all 0; Several days +1; More than half days +2; Almost every day +3; 2. Are you feeling depressed, depressed, or hopeless? Not at all 0; Several days +1; More than half days +2; Almost every day +3; The PHQ-2 score obtained by adding the scores for each question (total score). Interpretation: PHQ-2 score ranges from 0 to 6. The authors identified a score of 3 as optimal when using PHQ-2 to screen for depression. If the score is 3 or more, the patient is more likely to have a depressive disorder. Patients who have received a positive screening result should be further examined. The audiologic assessment of pre- and postoperative air conduction thresholds were calculated as mean (pure tone mean, PTA) over frequencies of 0.5, 1, 2, and 3 kHz.

Statistical analysis included mean and standard deviation (SD), a p-value <0.05 was considered statistically significant.

All patients gave their informed consent.

Results and Discussion

This study included 80 patients: 34 men (42.5%), 46 women (57.5%). The patients' age ranged from 18 to 70 years, the average age was 37 ± 5.68 years.

CSOM in the form of a unilateral lesion was found in 52 patients (65%), in the form of bilateral - in 28 people (35%), and there was no statistically significant difference in sex (p> 0.05) [Table 1].

The following types of CSOM were diagnosed: tubotympanic - 41 patients (51.25%) (group 1), atticoantral - 28 patients (35%) (group 2), early operated patients (sanitizing surgery - 7 patients, tympanoplasty - 4 patients) - 11 patients (13.75%) (3rd group). Cholesteatoma was diagnosed in 19 (23.75%) patients with atticoantral, while it was absent in 9 (11.25%) patients.

Most - 62 (77.5%) patients had a conductive type of hearing loss, 18 (22.5%) had mixed hearing loss.

On the opposite ear, surgery was previously performed in 5 (6.25%) patients, including tympanoplasty in 3 and sanitizing surgery in 2 patients. According to the degree of hearing loss, all 4 were diagnosed in patients with CSOM: the first degree - in 13 (16.25%), the second - in 26 (32.5), the third - in 40 (50%) and the fourth - in 1 (1,25%).

The patients underwent 4 types of operations: 28 (35%) patients underwent tympanoplasty, 18 (22.5%) patients underwent a one-stage sanitizing operation and tympanoplasty, sanitizing surgery - in 19 (23.75%) patients, which were patients with atticoantral and cholesteatoma, as well as 15 (18.75%) patients with ossiculoplasty and tympanoplasty.

When examining these symptoms, the results obtained showed that in the three groups the symptoms manifested themselves with the same frequency [Table 4].

The severity of these complaints among the three groups did not differ greatly.

Hearing impaired patients who have additional complaints such as discharge or tinnitus showed a lower quality of life score than hearing impaired patients alone. When patients were subdivided by the severity of hearing loss (mild, moderate, and severe), their quality of life showed no statistically significant difference [Table 3].

When dividing according to the types of chronic suppurative otitis media (tubotympanic and atticoantral), no significant differences were found when assessing the quality of life (p> 0.05).

When assessing the significance of unilateral and bilateral lesions among patients, we did not obtain a significant difference (p> 0.05), which indicates that unilateral or bilateral ear damage does not affect the patient's perception of the disease and a decrease in the quality of life. During the screening, we found that in 30% of cases - 24 patients had symptoms of depression, 56 patients - 70% scored up to 3 points on the questionnaire, while 11 scored 3 points and 12 more than 3, which was interpreted as a depressive state [Table 4].

In the postoperative period, patients had 3 degrees of hearing loss: normal hearing - 2 people (2.7%), 1st degree - 32 patients (42.7%), 2nd degree - 30 patients (40%), 3rd degree - 11 patients (14.7%) [Figure 1].

Table 1: Data on bilateral and unilateral lesions in men and women with chronic otitis media

Side of defeat	Women	Men	Total
Unilateral defeat	29	23	52
Bilateral defeat	17	11	28
Total	46	34	80 (100%)

Table 2: Quality of life (OS) indicators by mean score before surgical treatment

	Group 1		Group 2		Group 3		P1	P2	P3
	(n=13)		(n=31)		(n=36)				
	M	m	M	m	M	m			
ES	60,61	8,51	47,06	12,11	55,14	9,12	>0,05	>0,05	>0,05
HF	39,39	8,51	29,41	11,05	41,85	11,05	>0,05	>0,05	>0,05
MH	48,48	8,70	41,18	11,94	50,34	8,75	>0,05	>0,05	>0,05
OS-Overall score	49,49	8,57	39,22	11,70	48,45	10,72	>0,05	>0,05	>0,05

Table 3: Comparative assessment of the results in terms of the degree of hearing loss according to the COMOT-15 questionnaire

	Mild		Moderate		Severe		p		
	(n=13)		(n=31)		(n=36)				
	M	m	M	M	M	m	p1	p2	p3
ES	55,56	16,60	56,52	10,34	50,00	11,79	>0,05	>0,05	>0,05
HF	33,30	15,71	19,13	10,18	27,78	10,56	>0,05	>0,05	>0,05
MH	44,44	16,56	47,83	10,42	44,44	11,71	>0,05	>0,05	>0,05

Table 4: Preoperative PHQ-2 Test Results

PHQ-2 scores	Patients with CSOM (n = 80)	
	abs	%
0-2	56	30
3-6	24	70

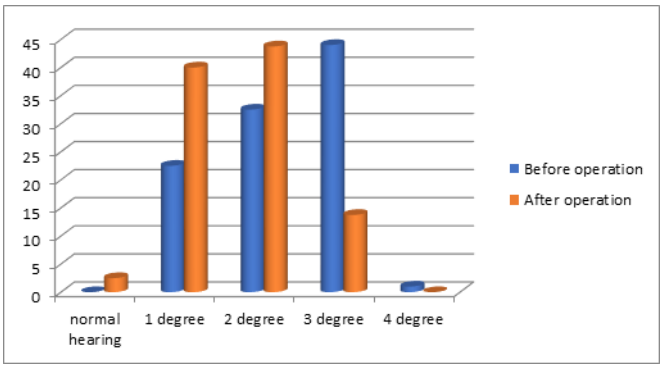

Figure 1: Indicators of hearing loss before and after surgical treatment

In the postoperative period, there was a statistically significant difference between the unilateral and bilateral process according to the results of the COMOT-15 questionnaire before surgery and after 6 months ($p < 0.05$).

The difference in the results of the COMOT-15 questionnaire before and after the operation was significant for each question: before the operation and 3 months after, before the operation and 1 year after ($p = 0.01$).

Patient satisfaction with the result of surgery after 6 months was achieved in 76%, and in 85.7% of patients (in the case of a unilateral process and in 71% in the case of a bilateral process. The difference is statistically significant, ($p < 0.05$) (Table 5). The relationship between the COMOT-15 questionnaire 6 months after the operation and postoperative TPA is significant ($p < 0.01$), that is, the patient's condition

subjectively improves in parallel with the improvement of the patient's physical condition in the postoperative period, recorded instrumentally. When evaluating the numerical indicators of a characteristic, it was determined that the relationship is direct.

When postoperative QoL parameters were compared according to COMOT-15, patients with a preoperative depressive state were significantly lower ($p<0.001$) than the group of patients without a depressive state ($P<0.01$) [Table 5].

Surgical treatment of CSOM has been studied and reported from both a surgical and functional point of view.[3,4,8–11] However, until today, few people have studied the psychopathological state of the patient. In Germany, the prevalence of current depressive symptoms is approximately 8.1%. In our study, when interviewed using PHQ-D, out of 80 patients with CSOM, 24 (30%) were diagnosed with a depressive state. Similar results were obtained in studies investigating the prevalence of depressive disorders in patients with chronic rhinosinusitis. Depression is associated with a variety of chronic diseases, including heart disease and diabetes mellitus. The bi-directional relationship between chronic illness and comorbid depression precludes an unambiguous assessment of the cause. However, sympathetic depression has been shown to negatively affect treatment outcomes. Depressive disorders have been shown to have a higher risk of adverse outcomes, increased use of analgesics and hospital visits.[20] When analyzing patients with chronic diseases, such as degenerative lumbar spine diseases, they showed a high correlation between preoperative mental health problems and the postoperative outcome.[17,18] In otorhinolaryngology, this association is poorly understood. The coexistence of depressive disorders such as head and neck cancer, chronic rhinosinusitis, allergic diseases, ear diseases and hearing impairments have been well studied.[12–14] However, only a few studies have assessed the effect of psychological state on outcomes after surgery. In both chronic rhinosinusitis and after endoscopic sinusitis treatment (FESS), the results obtained were significantly lower in patients with depressive symptoms. In this study, we examined a significant improvement in overall QoL after middle ear surgery. The postoperative QoL indicators correlate with the postoperative data of the tonal audiogram, which is consistent with the data of other authors.[3,8,11] However, the results of our study highlight the importance of preoperative depression as a major predictor of postoperative QoL outcomes after middle ear surgery. In addition, otologic studies have mainly looked at pathology and surgical tactics associated with factors that can influence the outcome of QoL. These are mainly studies such as the presence of cholesteatoma, surgical methods, obliteration of the mastoid process, bilateral lesions, etc.[3,10,11] Considering these results, patients with normal postoperative clinical observations (intact tympanic membrane, dry ear) and low QoL should be examined for concomitant depressive symptoms and, if necessary, offered a specific antidepressant treatment or psychiatric consultation. Our results indicate that the treatment of depressive disorders may open new doors to improve QoL in patients with CSOM. This can be important for the solution of comorbid depressive disorders as a component of comprehensive treatment, diagnosis and prognosis. To analyze the effect of psychological intervention on postoperative results requires research in this direction with the baseline. The results of our studies are consistent with other studies on QoL after surgical treatment.[3,4] Specific symptoms that may affect patients' lives are underrepresented in the QoL questionnaires. However, health-related QoL is needed to measure the impact of specific diseases on overall health and to permit comparisons that determine the impact of different diseases on overall QoL.[3] Perhaps we were not able to capture other factors that are important in the perception of patients with CSOM and its treatment. Our psychosocial assessment mainly focuses on depression. The effects of anxiety, personality, and somatization need to be investigated in more detail in future research, as studies from other areas have demonstrated.[20] The degree of depressive strength was scored and was not supplemented by psychological examination by a psychiatrist or clinical psychologist. Diagnosis of depression has traditionally been based on clinical criteria, including patients' symptoms. However, to standardize data and interpretations, various survey-based screening tools for depression have been developed and used in both clinical and scientific practice. For the diagnosis of depressive disorder, PHQ-2 has shown excellent validity of the criterion in the medical form of patients with. It takes about 5 minutes to complete the survey. PHQ-2 assessment approx. 1 min. Diagnostic confidence and easy application make this tool acceptable even in busy clinical settings. Depression - should be included for assessment in preoperative screening of patients with chronic hepatitis B and these patients should receive appropriate psychological treatment for a better postoperative outcome.

Conclusion

Surgical treatment in the postoperative period significantly increases the patient's QoL. Tonal threshold audiogram and the COMOT-15 questionnaire in the postoperative period have a direct relationship. The presence of depression in patients with CSOM leads to the worst QoL results after surgical treatment on the middle ear. Improving surgical outcomes requires improved preoperative screening for depression.

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Table 5: QoL indicators according to COMOT-15 before and after surgical treatment of patients with depression and without it

Questionn	Before treatment		After surgical treatment				P		
	Patients with CSOM (n = 80)		Depressed (n = 24)		No depression (n = 56)				
	M	m	M	m	M	m	p1	p2	p3
COMOT-15	51,2	11,79	25	8,71	55,6	12,79	<0,01	<0,001	<0,01

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