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Dynamics Of Life Quality Of Neurooncological Patients.

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ABSTRACT

Cerebral tumors, despite some advances in the diagnosis and treatment of neoplasms in general, are an actual problem due to low patient survival and high rate of their disability. The life quality indicator is an important tool for an integrated assessment of the general state of health, as the patient is given the opportunity to assess his/her own health status independently. Research purpose: studying the dynamics of life quality of patients with cerebral tumors. The study is descriptive and analytical. The materials were collected in the East Kazakhstan region of the Republic of Kazakhstan in 2017. A total of 69 respondents with verified cerebral tumors participated in the study. The main method is the survey made using the questionnaire "SF-36". In the post-surgical period, in comparison with the patients' health status at the time of admission, the life quality level of neurooncological patients is statistically significantly different in the scales of physical functioning ($t = 2.13$, $p < 0.05$), role-emotional functioning ($t = 3.01$, $p < 0.01$), bodily pain ($t = -4.14$, $p < 0.01$) and social functioning ($t = -1.99$, $p < 0.05$). At the same time, the dynamics of life quality differs in men and women, as well as depends on the patient's age. In neurooncological patients, the level of indicators of social functioning and bodily pain is lower, and the level of physical functioning and role-emotional functioning is higher after the surgery in comparison with pre-surgical indicators. The results obtained in assessing the life quality are necessary for monitoring loads in patients with cerebral tumors, and allow planning of preventive and rehabilitation measures taking into account the identified features.

Keywords: cerebral tumors, neurooncology, life quality, "SF-36", Kazakhstan

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INTRODUCTION

Cerebral tumors are a quiet relevant problem. This pathology affects the personality of a person and society as a whole due to the growth of disability and a decrease in labor productivity, with the concomitant increase in the use of health resources and costs [1, 2].

According to different authors the spread of cerebral tumors varies. According to a systematic review conducted in 2015 (de Robles P et al.), the incidence of primary cerebral tumors averages to 10.8 (95% CI: 8.6 ÷ 13.6) per 100,000 man-years, and in some cases reaches 25.5 per 100,000 man-years [3].

One of the main methods of treating cerebral neoplasms is surgical intervention. An adequate assessment of care provision after surgical treatment is not possible without studying the life quality indicators. For neurooncological patients, the life quality criterion, along with the criteria for survival and life expectancy, is one of the main indicators of treatment effectiveness [4].

Currently, MOS SF-36 (Medical Outcomes Survey 36-Item Short Form Health Questionnaire) is one of the most widely used surveys of the general type for assessing the life quality [5].

There is a sufficient number of studies to study the life quality of patients with cerebral tumors in the modern scientific literature. As a rule, these are case-control studies, which contain a comparative analysis of the life quality indicators of patients with cerebral tumors with the life quality indicators relative to a healthy population. However, it is determined the deficit of studies on the life quality of neurooncological patients in dynamics: before and after surgery.

The foregoing stipulated the relevance of the study given, whose goal is to study the life quality of patients with verified cerebral tumors before and after surgery.

PARTICIPANTS AND METHODS

The study design is descriptive and analytical. The data were collected in the East Kazakhstan region of the Republic of Kazakhstan in 2017. A total of 69 respondents with verified cerebral tumors participated in the study (C71, D33): 43.5 ± 5.97% of men and 56.5 ± 5.97% of women aged "up to 50 years old" (43.5 ± 5.97%), "51-60 years old" (43.5 ± 5.97%) and "over 60 years old" (43.5 ± 5.97%) .

Life quality was studied using the questionnaire "SF-36" (Russian version) at the time of patient's admission to the medical organization and after surgery (neoplasm removal).

The life quality was analyzed according to the following scales: Physical Functioning (PF), Role-Physical Functioning (RP), Bodily Pain (BP), General Health (GH), Vitality (VT), Social Functioning (SF), Role-Emotional Functioning (RE), Mental Health (MH).

For each respondent, it was carried out the procedure for survey response recounting to the life quality scores (transformation). The scales were calculated by the formula:

$$LQ\ (in\ scores) = \frac{\text{real value} - \text{minimum value possible}}{\text{possible indicator difference}} * 100$$

Thus, the value of each scale has changed from 0 to 100, where 100 represents total health.

The standard procedure was to calculate the arithmetic mean ($\overline{X}$) and the standard error of the mean ($S_{\bar{x}}$). It was used a t-test to measure the significance of the differences.

The tool for statistical processing of the data obtained was the Microsoft Excel program and the IBM SPSS Statistics package.

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RESULTS

In general, it is determined a sufficiently low level (less than 50) of physical functioning and role functioning, conditioned by the physical and emotional status, in patients with cerebral tumors upon admission to the medical organization and after surgery.

The observation in dynamics showed that after the neoplasm removal, the life quality level in neurooncological patients significantly increased according to the scales of physical functioning ($t = 2.13$, $p < 0.05$) and role-emotional functioning ($t = 3.01$, $p < 0.01$), and significantly decreased in bodily pain scales ($t = -4.14$, $p < 0.01$) and social functioning ($t = -1.99$, $p < 0.05$). It should be noted that during the post-surgical period, the level of role-physical functioning, the level of general health and vitality insignificantly increased, and the level of mental health insignificantly decreased (Table 1).

Table 1 - Mean values of life quality scales before and after surgery and difference reliability indicators

Scales	Average life quality ($\overline{X} \pm S_{\bar{x}}$)		Difference reliability indicators
	before surgery	after surgery	
PF	35.94±3.65	47.32±3.89	t=2.13, p<0.05
RP	26.81±4.17	36.96±5.60	t=1.45, p>0.05
BP	51.45±2.97	32.90±3.36	t=-4.14, p<0.01
GH	50.51±1.44	52.61±1.17	t=1.13, p>0.05
VT	59.49±1.37	59.57±0.98	t=0.05, p>0.05
SF	59.96±1.14	56.88±1.05	t=-1.99, p<0.05
RE	23.19±4.03	43.96±5.61	t=3.01, p<0.01
MH	56.75±1.55	55.19±1.47	t=-0.73, p>0.05

Figure 1 presents data on the average values of the life quality scales before and after surgical intervention in men and women. It should be noted that the bodily pain indicators ($t = -2.07$, $p < 0.05$) significantly decreased and general health indicators ($t = 3.15$, $p < 0.01$) significantly increased in men after surgical treatment according to the statistics. The indicators of role-emotional functioning also increased in men, however, they were statistically insignificant ($t = 1.86$, $p > 0.05$). In turn, the indicators of physical functioning ($t = 3.06$, $p < 0.01$), role-physical functioning ($t = 2.14$, $p > 0.05$) and mental health ($t = 2.41$, $p > 0.05$) significantly increased in women, but the bodily pain indicators ($t = -4.35$, $p < 0.01$) and social functioning indicators ($t = -3.47$, $p < 0.01$) decreased.

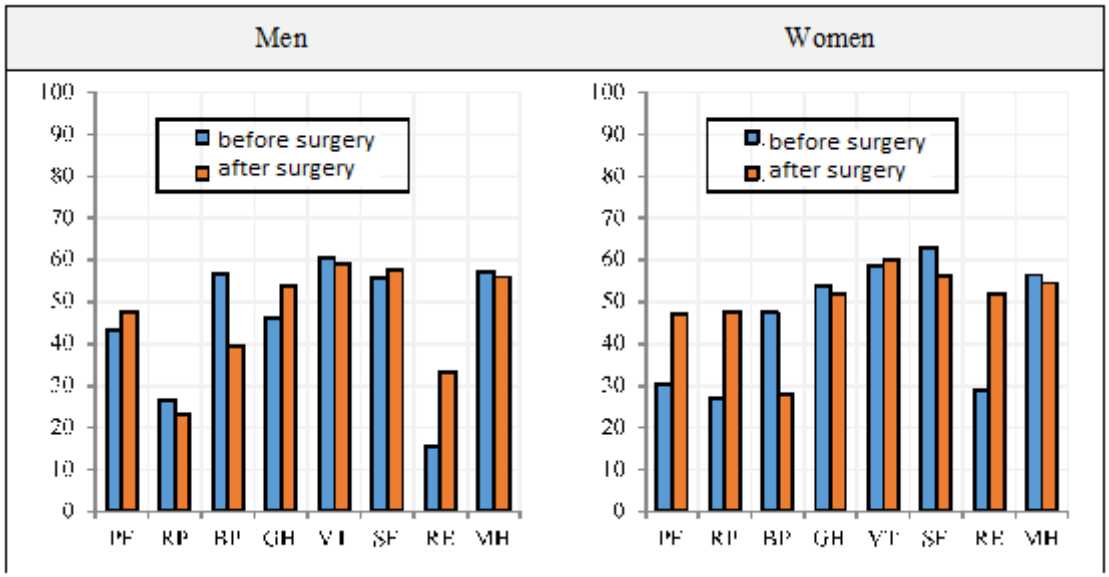

Figure 1 - Average values of the life quality scales before and after surgical intervention in men and women

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The life quality has some differences in different age groups (Figure 2). Thus, there were statistically significant differences in physical functioning (t = 1.97, p <0.05), bodily pain (t = -2.93, p <0.01) and vitality (t = 3.17, p <0.01) in the age group "up to 50 years old" after treatment, in comparison with the state at admission. Social functioning (t = -2.26, p <0.05), role-emotional functioning (t = 1.98, p <0.05) and mental health (t = -2.69, p <0.01) were significantly different in patients in the age group "51-60 years old". And there were significant differences in physical functioning (t = 2.08, p <0.05), bodily pain (t = -2.86, p <0.01), social functioning (t = -2.44, p <0.05) and role-emotional functioning (t = 2.35, p <0.05) in the age group "over 60 years old".

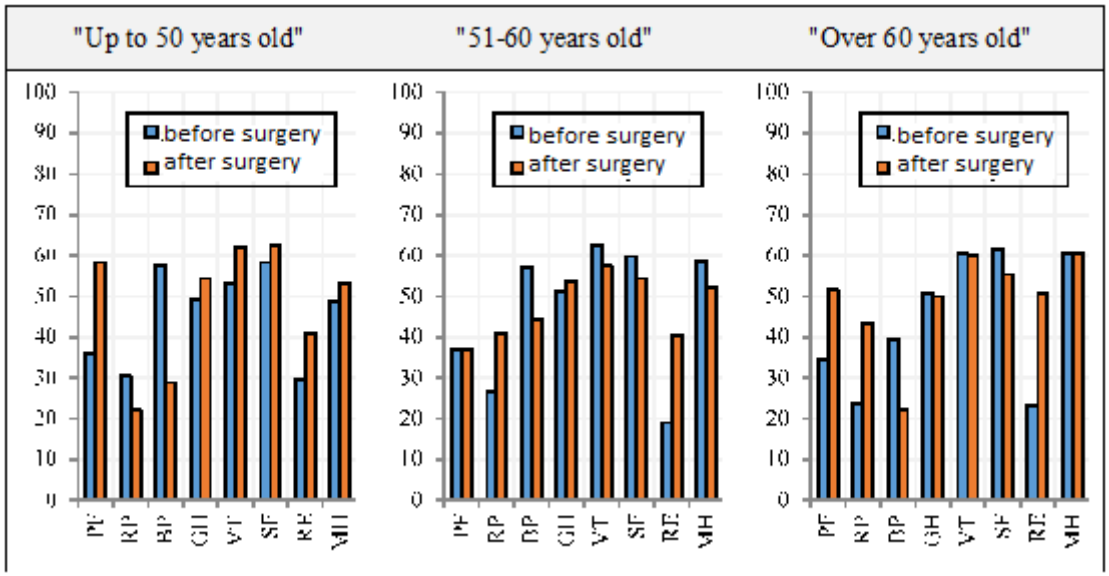

Figure 2 - Average values of life quality scales before and after surgery in the age groups "up to 50 years old", "51-60 years old" and "over 60 years old"

DISCUSSION

The life quality analysis provides us with the valuable additional information about patients with cerebral tumors, which is necessary for planning preventive and rehabilitation activities taking into account the identified features.

According to the study made, we have identified that in neurooncological patients the level of indicators of social functioning and bodily pain is much more lower, and the level of physical functioning and role-emotional functioning is higher after the surgery in comparison with pre-surgical indicators. The results obtained by us agree with the opinion expressed by such authors as Turel M.K., Kim C.W., Abel E., Khandelwal A., Gobbo M. et al. [6, 7, 8, 9,10].

According to McCarty S., Inoue S. et al., bodily pain determines the burden of disease and affects the life quality [11, 12]. In our opinion, low life quality indicators on the bodily pain scale before and after surgery are so due to a more severe course of a disease due to special neoplasm localization.

The statistically significant gender and age differences in the life quality indicators found in the study are consistent with the results of studies made by such authors as Verweij N.M., Amirdjanova V.N. et al.. [13, 14]. It was found that the men activity limited the bodily pain, while they evaluated the state of their health after the surgery significantly higher in comparison with the state in the pre-surgery period. In turn, the women had some decrease in their social activity and their activity was limited due to the bodily pain in dynamics, while physical activity and role-physical and role-emotional functioning were restored. It should be also said about the age group "51-60 years old", which is characterized by a decrease in mental health in the post-surgery period along with a decrease in social functioning. In our opinion, this age group is vulnerable and requires an individual approach when planning medical care for the patients with cerebral tumors.

Thus, this study provides convincing evidence that the life quality in patients with cerebral tumors is due to gender and age aspects and is significantly different before and after surgery. This fact is important in the development of prevention and rehabilitation strategies in neurooncological patients.

CONCLUSION AND RECOMMENDATIONS

The analysis showed that, in general, the life quality level in neurooncological patients was much higher in the scales of physical functioning and role-emotional functioning, but was lower in bodily pain and social functioning scales in the post-surgery period, in comparison with the patients' state at the time of admission to the medical organization.

There are common features of the dynamics of life quality, as well as some specific differences for men and women. The bodily pain significantly decreased after surgical treatment both in men and in women. The men are characterized by a significant increase in the general health indicator in the post-surgery period. The women are characterized by an increase in the indicators of physical functioning, role-physical and role-emotional functioning and a decrease in the social functioning indicator.

The dynamics of life quality is different in the age groups. The age group "up to 50 years old" is characterized by an increase in the indicator of physical functioning and vitality and a decrease in the bodily pain indicator. The patients aged 51-60 years old are characterized by an increase in the role functioning indicator due to the emotional state and a decrease in the indicators of social functioning and mental health. The age group "over 60 years old" is characterized by an increase in the indicators of physical functioning and role-emotional functioning and a decrease in the indicators of bodily pain and social functioning.

Based on the results of this study, it is planned to develop recommendations to help practitioners in the rehabilitation of neurooncological patients. First of all, to restore the mental health of patients with cerebral tumors in the post-surgery period, we consider it advisable to recommend "compulsory" counseling of a therapist doctor at the stage of inpatient care. In our opinion, psychotherapeutic assistance in a comprehensive rehabilitation will also help to restore social functioning in these patients.

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