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Assessment of the Quality of Life in Patients Recovering after a Cerebral Stroke

Ocena jakości życia pacjentów po udarze mózgu

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Abstract

Introduction. Quality of life (QOL) has been defined as a person's perception of their social, cultural and self-worth position in the society and its effect on the person's goals, expectations and apprehensions in life. It is a wide-ranging concept including physical health, mental state, level of independence and social relationships.
Aim. The aim of the study was to asses the quality of life of patients after a cerebral stroke.
Material and Methods. The study was carried out in a group of 106 patients after a cerebral stroke and hospitalized in the neurological ward. The age of the patients was ranged 32–90 years (mean age 59.12±13.04). Females constituted 56.00% of the studied group. The majority of patients were married (57.55%). The study material was obtained with the use of WHOQOL-Bref scale and Barthel scale.
Results. The patients' assessment of their general quality of life was at a mean level of 3.18±0.943 and their assessment of the state of health was 2.96±0.94. Distribution of the mean values in specific domains of life was as follows: social (55.00±21.61), environmental (54.23±16.67), somatic (53.89±18.17), psychological (46.53±17.23). Evaluation of the patients with Barthel scale classified the majority of them into Category II (51.90%), while Category I included 41.50% of patients; only 6.60% were in the worst state and qualified for Category III.
Conclusions. Self-assessment of the patients recovering from a cerebral stroke was at a reduced level. The patients' functional agility significantly affected their assessment of the quality of life. The type of stroke, education and place of living had a considerable effect on self-assessment of the quality of life in the patients recovering from a cerebral stroke. **(JNNN 2017;6(4):163–169)**
Key Words: quality of life, a cerebral stroke

Streszczenie

Wstęp. Jakość życia (QOL) została określona jako postrzeganie przez osoby ich pozycji w życiu w kontekście systemów kultury i wartości, w których żyją relacji do ich celów, oczekiwań i obaw. Jest to szeroko pojęta koncepcja obejmująca zdrowie fizyczne, stan psychiczny, poziom niezależności, relacje społeczne.
Cel. Celem badań było dokonanie oceny jakości życia pacjentów po udarze mózgu.
Materiał i metody. Badania przeprowadzono w grupie 106 pacjentów po przebytym udarze mózgu, hospitalizowanych w oddziale neurologii. Wiek badanych zawierał się w przedziale 32–90 lat (średnia 59,12±13,04). Kobiety stanowiły 56,00% badanej grupy. Większość pacjentów pozostawało w związku małżeńskim (57,55%). Materiał badawczy zebrano za pomocą skali WHOQOL-Bref oraz skali Barthel.
Wyniki. Pacjenci ocenili ogólną jakość swojego życia na poziomie średniej 3,18±0,94 a stan swojego zdrowia na 2,96±0,94. Rozkład średnich w poszczególnych dziedzinach jakości życia kształtował się następująco: socjalna (55,00±21,61), środowiskowa (54,23±16,67), somatyczna (53,89±18,17), psychologiczna (46,53±17,23). Dokonując oceny badanych skalą Barthel stwierdzono, że najwięcej badanych znalazło się w kategorii II (51,90%). W kategorii I było 41,50% osób, a tylko 6,60% było w najcięższym stanie i zakwalifikowano je do kategorii III.
Wnioski. Samoocena jakości życia przez pacjentów po udarze mózgu była na obniżonym poziomie. Sprawność funkcjonalna badanych znacząco wpływała na samoocenę ich jakości życia. Rodzaj udaru, wykształcenie oraz miejsce zamieszkania miały znaczący wpływ na samoocenę jakości życia przez pacjentów po udarze mózgu. **(PNN 2017;6(4):163–169)**
Słowa kluczowe: jakość życia, udar mózgu

Introduction

Quality of life (QOL) has been defined as a person's perception of their social, cultural and self-worth position in the society and its effect on the person's goals, expectations and apprehensions in life. It is a wide-ranging concept including physical health, mental state, level of independence and social relationships. The term "quality of life" is superior to the term "health-related quality of life" (HRQOL) which refers to the quality of life in relation to patients' state of health [1].

Intensification of symptoms, especially motor dysfunction, substantially limits the patient's social, and professional relations and causes dissatisfaction in the patient with their situation in life, i.e. with the quality of life in its broad sense. Deterioration of the quality of life in a person recovering from a cerebral stroke is a result of the CNS impairment, which restricts the person's self-reliance in everyday life and leads to disability and dependence on others [2,3].

The aim of the study was to assess the quality of life of patients after a cerebral stroke.

Material and Methods

The study was carried out in a group of 106 patients recovering after a cerebral stroke, hospitalized in the Neurological Clinic at the Independent Clinical Hospital No 4 in Lublin. The age of the patients ranged 32–90 years (mean age 59.12±13.04). The study was performed in compliance with the guidelines of the Declaration of Helsinki and data anonymity preservation. Informed consent to participate in the study was obtained from the patients. The age of the patients was 32–90 years (mean age 59.12±13.04). Females constituted 56.00% of the studied group. Table 1 presents the characteristics of the studied group.

The study material was obtained with the use of a standardized tool — a Polish version of the WHOQOL-Bref scale. The WHOQOL-Bref scale is generally used for assessment of the quality of life of both healthy and sick people. It is made up of 26 questions which enable eliciting information about the quality of life of a person with respect to their physical, mental, social and environmental sphere of life. It also contains two questions, looked into separately and regarding general perception of the quality of life as well as subjective satisfaction with an individual's state of health [4,5].

In order to assess the studied patients' functional agility, the Barthel scale was applied. It is a scale used for evaluation of functional fitness and it enables determination of the patient's level of self-reliance. Depending on the range of independence/self-reliance, each patient could score 0–100 points. The assessment of the abilities to perform everyday activities gave grounds for establishing three categories of patients: Category I (100–86 points) includes those patients who are well able to cope with everyday activities, Category II (21–85 points) comprises the patients unable to perform some everyday activities, whereas Category III (0–20 points) includes the patients who are unable to perform most of everyday activities [6,7].

Statistical analysis of the obtained material was performed. In order to point out a statistically significant difference or dependence, $p \leq 0.05$ was adopted as the level of significance.

Table 1. Characteristics of the research pool

Variable	%
Gender	
Woman	56.00
Man	44.00
Age	
32–49 years old	27.36
50–64 years old	37.70
65–90 years old	34.94
Marital status	
Single	42.45
Married	57.55
Education	
Elementary/Vocational	40.57
Secondary	38.68
Higher	20.75
Place of living	
Urban area	53.80
Rural area	46.20

Results

The patients' mean assessment of their quality of life was 3.18±0.943 and mean assessment of their state of health was 2.96±0.94. Distribution of the mean values in specific domains of life was as follows: social (55.00 ±21.61), environmental (54.23±16.67), somatic (53.89 ±18.17), psychological (46.53±17.23).

Evaluation of the patients with the Barthel scale revealed that the majority of them belonged to Category II (51.90%), while Category I included 41.50% patients; only 6.60% were in the worst state and qualified for Category III.

For statistical purposes further analysis of the patients from Categories II and III was performed together. Table 2 presents distribution of the mean assessments

Table 2. Barthel category and the assessment of the quality of life

Quality of life	Barthel I		Barthel II/III		Statistical analysis	
	Mean	SD	Mean	SD		
General quality of life (1–5)	3.45	0.95	3.00	0.90	Z=2.745	p=0.006
Health state assessment (1–5)	3.34	0.77	2.69	0.96	Z=3.647	p=0.000
Somatic (0–100)	64.38	15.31	46.45	16.35	t=5.709	p=0.000
Psychological (0–100)	54.38	17.35	40.96	14.92	t=4.261	t=0.000
Social (0–100)	63.63	18.09	48.88	21.93	t=3.661	p=0.000
Environmental (0–100)	62.11	15.91	48.64	14.94	t=4.449	p=0.000

Z — Mann-Whitney U test; t — Student's t-test

of the quality of life according to the patients' own evaluation and with the use of the Barthel scale. It shows that with regard to the general quality of life the assessments of the state of health as well as all the other spheres of life were assessed higher in those patients whose physical fitness was better. This difference was of high statistical significance.

The analysis of the patients' assessment of the quality of life depending on the type of stroke they had had revealed that those after an ischaemic stroke assessed their quality of life higher. Statistical difference turned out to be insignificant only with regard to their assessment of the state of health and somatic domain (Table 3).

Table 3. Type of stroke and the assessment of the quality of life

Quality of life	Haemorrhogic		Ischaemic		Statistical analysis	
	Mean	SD	Mean	SD		
General quality of life (1–5)	2.80	1.08	3.43	0.75	t=-3.513	p=0.006
Health state assessment (1–5)	2.80	1.08	3.06	0.83	t=-1.352	p=0.179
Somatic (0–100)	52.42	17.24	54.85	18.83	t=-0.671	p=0.503
Psychological (0–100)	43.09	18.70	48.79	15.95	t=-1.680	p=0.045
Social (0–100)	49.97	23.73	58.31	19.59	t=-1.968	p=0.050
Environmental (0–100)	50.04	18.90	56.98	14.53	t=-2.130	p=0.035

t — Student's t-test

Another issue was to determine the studied patients' assessment of their quality of life with regard to their gender. The studied females assessed their general quality of life at a mean level of 3.36±0.85 and their assessment of state of health was 3.05±0.81. In the studied males the assessment was lower, they assessed their general quality of life at a mean level of 2.97±1.01 and their state of health as 2.85±1.08. In all the studied spheres of life the assessment of quality of life was also higher in the studied females, yet, the value was statistically insignificant (Table 4).

The effect of the level of education on the quality of life of the patients after a cerebral stroke was also studied. To serve further needs of statistical analysis, the patients with elementary and vocational school education were included in one group. The results presented in Table 5 show indicate that the patients with secondary education assessed their general quality of life the highest (3.46 ±0.71). However, the assessment of the state of health and the four domains spheres of life was assessed as the highest by the patients with higher education. The statistical analysis performed revealed a statistically

Table 4. Gender and the assessment of the quality of life

Quality of life	Female		Male		Statistical analysis	
	Mean	SD	Mean	SD		
General quality of life (1–5)	3.36	0.85	2.97	1.01	Z=1.952	p=0.050
Health state assessment (1–5)	3.05	0.81	2.85	1.08	Z=1.059	p=0.289
Somatic (0–100)	55.36	17.16	52.18	19.31	t=0.898	p=0.370
Psychological (0–100)	48.61	16.44	44.12	17.97	t=1.343	p=0.182
Social (0–100)	56.49	21.70	53.28	21.59	t=0.759	p=0.449
Environmental (0–100)	56.96	15.17	51.06	17.89	t=1.838	p=0.068

Z — Mann-Whitney U test; t — Student's t-test

Table 5. Education and the assessment of the quality of life

Quality of life	Elementary/Vocational		Secondary		Higher		Statistical analysis	
	Mean	SD	Mean	SD	Mean	SD		
General quality of life (1–5)	2.86	0.91	3.46	0.71	3.31	1.21	F=4.840	p=0.009
Health state assessment (1–5)	2.58	0.93	3.17	0.77	3.31	1.04	F=6.701	p=0.001
Somatic (0–100)	46.09	19.20	56.02	15.45	65.18	13.85	F=9.926	p=0.000
Psychological (0–100)	37.72	14.09	50.87	15.98	55.68	17.80	F=12.158	p=0.000
Social (0–100)	46.11	20.97	58.97	19.78	65.00	20.31	F=7.510	p=0.000
Environmental (0–100)	47.37	16.84	56.87	14.17	62.72	15.92	F=7.938	p=0.000

F — analysis of variance

Table 6. Marital status and the assessment of the quality of life

Quality of life	Single		Married		Statistical analysis	
	Mean	SD	Mean	SD		
General quality of life (1–5)	3.00	0.97	3.32	0.90	Z=-1.762	p=0.050
Health state assessment (1–5)	2.77	1.02	3.09	0.86	Z=-1.663	p=0.096
Somatic (0–100)	49.77	19.48	56.93	16.66	t=-2.033	p=0.044
Psychological (0–100)	41.11	17.40	50.54	16.09	t=-2.879	p=0.004
Social (0–100)	47.66	21.85	60.42	19.92	t=-3.127	p=0.002
Environmental (0–100)	49.86	18.08	57.45	14.88	t=-2.367	p=0.019

Z — Mann-Whitney U test; t — Student's t-test

Table 7. Place of residence and the assessment of the quality of life

Quality of life	Urban area		Rural area		Statistical analysis	
	Mean	SD	Mean	SD		
General quality of life (1–5)	3.35	0.87	3.00	1.00	Z=2.245	p=0.024
Health state assessment (1–5)	3.19	0.87	2.69	0.96	Z=2.891	p=0.003
Somatic (0–100)	59.52	15.53	47.34	18.96	t=3.633	p=0.000
Psychological (0–100)	52.73	16.29	39.32	15.52	t=4.317	p=0.000
Social (0–100)	61.07	19.92	47.95	21.54	t=3.253	p=0.001
Environmental (0–100)	60.03	14.61	47.48	16.51	t=4.149	p=0.000

Z — Mann-Whitney U test; t — Student's t-test

significant difference between the groups with regard to the analysed variable.

In the course of the study the relationship between the quality of life and marital status of the patients after a stroke was also investigated. It was found that married patients assessed their quality of life higher. The difference was statistically significant in all aspects except for the patients' assessment of the state of health (Table 6).

The influence of the place of residence on the quality of life of the patients after a cerebral stroke was also investigated. The results presented in Table 7 show that in all aspects of quality of life the assessment was evidently higher in the patients from urban areas. The statistical analysis also showed significant differences between the studied groups.

Discussion

The authors of numerous studies evaluating the quality of life in patients after a cerebral stroke agree that the quality of life of those patients deteriorates significantly when it comes to most of the functional activities and mental well-being [8–10]. Yet, they are not unanimous in determining the significance of the factors which affect the quality of life of this kind of patients. The authors emphasize the importance of such factors as: age, sex, functional agility, including the degree of disability, presence of depression, social status, social support [11–15]. Our research has also shown that patients who have had a cerebral stroke assess their level of quality of life as worse. The studied patients assessed their quality of life as the worst when it comes to the psychological domain of their lives. Also studies conducted by other authors [16–17] point out that patients after a cerebral stroke assess their quality of life as worse.

Our research has revealed a dependence between functional fitness evaluated according to the Barthel scale and assessment of the quality of life; together with deteriorating fitness the patients' subjective assessment of the quality of life also deteriorated. The studies conducted by Trochimczyk et al. [18] confirm this finding as well.

In our research it was observed that the patients after an ischaemic cerebral stroke assessed their quality of life higher than the patients after a haemorrhagic cerebral stroke. This difference was, however, statistically significant with regard to the patients' assessment of their general quality of life as well as with regard to their social and environmental spheres of life. Trochimczyk et al. [18] also noted a similar level of satisfaction with the quality of life in patients after an ischaemic stroke. In their study the mean assessment result was 3.23±0.81.

Our own study results show that the studied females assessed their the quality of life higher. Yet, there was no statistically significant difference between the assessment of quality of life by the males and females. The studies performed by Iwańczuk et al. [19], did not find any significant differences with regard to the level of the quality of life of the women and men after a cerebral stroke, either. Also the study results of Błaszczyszyn et al. [20], do not show a statistical difference in the level of the quality of life between the men and women after a cerebral stroke. Baumann et al. [21], obtained similar results and observed that the studied women's results regarding assessment of quality of life were much better.

Our own study results have revealed dependence between the level of education and the quality of life. General quality of life was assessed the highest by the study subjects with secondary school education, while the highest assessment of the quality of life was noted in the patients with higher education. In their studies, Caunto et al. [22], arrived at the same conclusions. Their

study results also confirmed a dependence between education and assessment of the quality of life.

Our study results also show that married patients assessed their quality of life higher in comparison to single individuals. This difference turned out to be statistically significant in each analysed domain. The studied patients assessed the social domain the highest. In the studies of Zawadzka et al. [17], the respondents also assessed social relationships the highest. Other researchers confirm our study results [23,24] claiming that having a spouse improves the quality of life. At the same time, some researchers [8] are of the opinion that married people present lower functional fitness because of their overprotective spouses, which markedly reduces their quality of life.

The effect of the place of living of the studied patients on their assessment of the quality of life was also analysed. Our own study results have shown explicitly that living in urban areas has a positive effect on the assessment of the quality of life. A statistically significant difference was found in each aspect of the assessment. Also the studies of by Dębińska and Mraz [25] show a correlation between the place of living and the quality of life; individuals from urban areas assessed their quality of life higher, but the difference was not statistically significant. The studies by Zawadzka et al. [17] did not reveal any dependence between the quality of life of the patients and their place of living.

Conclusions

Self-assessment of the quality of life by patients after a cerebral stroke was reduced. Functional fitness/agility markedly affected the patients' assessment of their quality of life. The type of stroke, education and place of living significantly affected the assessment of the quality of life in the patients after a cerebral stroke.

Implications for Nursing Practice

Nursing care of patients after a cerebral stroke should be focused on improving their quality of life. This can be achieved by comprehensive evaluation of the patient's condition, determining patient's deficits, both physical and mental. The patient should be motivated and encouraged to make efforts to achieve more independence. Another important task of the nurse is to educate the patient's family on how to take care of the patient after a cerebral stroke.

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