Research article

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Evaluation of quality of life in patients with ischemic stroke after 3 months of treatment at People's Hospital 115

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Abstract

The prospective research was conducted from March 2023 to September 2023 at People's Hospital 115 (Ho Chi Minh City) on patients diagnosed and treated for acute ischemic stroke according to the treatment regimen of the Ministry of Health. Quality of life is assessed through the EQ-5D-5L scale, including 5 different aspects: mobility, self-care, normal activities, pain/discomfort and anxiety/depression. Research results show that the quality of life of patients with ischemic stroke has significantly improved in all aspects from the point of discharge from the hospital to after 3 months. The proportion of patients without problems with mobility, self-care and normal activities increased from about 35 - 45% to about 80%. The proportion of patients who has no anxiety/depression also increased from 42.6% to 82.0%. These results are statistically significant ($p < 0.001$), reflecting the effectiveness of the treatment and rehabilitation process. In addition, the EQ-index improved from 0.671 to 0.894 and the VAS score increased from 63.24 to 81.9, while the mRS index decreased from 3 to 2, indicating a reduction in disability and an increase in independence of patient's condition after treatment.

Keywords: Ischemic stroke, quality of life, EQ-5D-5L, functional rehabilitation.

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1. INTRODUCTION

Ischemic stroke is one of the most common and serious neurological diseases, not only having a significant impact on public health but also being a major problem in the field of global medicine. This disease not only has a high mortality rate, ranking third after cancer and cardiovascular diseases globally, but is also the leading cause of disability in adult patients. With a current incidence rate of about 1.3‰ and an incidence rate of up to 22/100,000 people/year, ischemic stroke is constantly a special medical challenge in developing countries, including Vietnam.

In Vietnam, with the increase in the elderly population, the number of people with ischemic stroke is also increasing [1][2][3], especially in large urban areas such as Ho Chi Minh City (HCMC), Tien Giang and Kien Giang, with an annual incidence rate of 2.5/1000 people and a mortality rate of 1.31/1000 people [4]. Ischemic stroke often occurs and suddenly progresses rapidly, leaving many physical and mental sequelae for the patient. However, recovery from treatment of the acute phase of the disease is usually rapid in the first 3 months, with the highest recovery rate in the first week [5].

In the context of comprehensive treatment, improving the quality of life for survivors after ischemic stroke is increasingly emphasized. Assessing the quality of life after ischemic stroke through standard questionnaires such as HAQ, WHOQOL - BREF, SF-36, SIS, ... and especially the EQ-5D-5L scale has become a vital part in patient care strategies. EQ-5D-5L scale, with its outstanding advantages in assessing health and psychological status, has been proven to be a useful tool in assessing quality of life and supporting cost-effectiveness

analysis in the treatment of ischemic stroke [6].

Although there have been some studies on quality of life after ischemic stroke in Vietnam, there is still a lack of studies using the EQ-5D-5L scale in Ho Chi Minh City. Therefore, we conducted this study with the purpose of evaluating the quality of life of ischemic stroke patients at People's Hospital 115, using the EQ-5D-5L scale. This study not only aims to provide information about the quality of life of patients after ischemic stroke but also contributes to improving the quality of treatment and improving the lives of patients.

2. METHOD OF RESEARCH

Research design: Prospective study.

Sampling criteria: Patients were diagnosed with acute ischemic stroke based on clinical and imaging within the first 24 hours, were able to communicate effectively in Vietnamese and agreed to voluntarily participate in the study.

Exclusion criteria: Patients with severe dementia, patients with concomitant cerebral hemorrhage, those with comorbidities with a life expectancy of less than 6 months according to CMS guidelines and those with incomplete responses questions in the EQ-5D-5L toolkit.

Variables: The study includes 3 groups of variables: background variables (including 5 variables), independent variables (including 19 variables) and outcome variables (average score of quality of life). In particular, the main variables of the study are:

Quality of life: Based on the EQ-5D-5L scale approved by the European Scientific Association for use in Vietnam[7]. The scale includes five aspects: mobility, self-care, normal activities, pain/discomfort, and anxiety/depression. Each aspects has 5 levels, from no problem to serious problem, corresponding to scores from 1 to 5.

Health status (at the point of assessment): Based on the EQ-VAS scale, which is part of the EQ-5D scale. Patients will self-assess by marking on a scale from 0 (worst health status) to 100 (best health status).

Degree of infarction: Based on clinical severity grading according to the NIHSS scale (National Institute of Health Stroke Scale). It includes Very severe clinical severity (21-42), severe clinical severity (16-20), moderate clinical severity (5-15), mild clinical severity (1-4), no severity (0).

Degree of disability: Based on mRS scale (Modified Rankin Scale). This scale has 6 levels, from 0 (no symptoms) to 6 (death).

Statistical method: Assessing the distribution of quality of life scores and other quantitative variables using Histogram, Q-Q plot, Boxplot, combined with Skewness and Kurtosis. Comparing the indexes at the point of discharge (T0) and after 3 months (T1) using the Wilcoxon Sign rank test. Comparing the proportions of factors at T0 and T1 using the McNemar test. The results are statistically significant when the p - value < 0.05.

Data processing software: Microsoft Excel 2019 and IBM SPSS (version 20).

3. RESEARCH RESULTS

Characteristics of the study sample and clinical manifestations

Characteristics of the research sample:

The results of this study showed full participation of 54 ischemic stroke patients, with a participation rate of 100% at T0 and 7.4% unable to be contacted at T1. Regarding gender, the research group has a majority of men at 61.1% compared to 38.9% of women. The average age of the study group was 58.7 years old, in which men had a lower average age (57.7 years) than women (60.3 years). Distribution by age group shows balance between groups under 60 years old and 60 years old and above.

The majority of patients have a high school education level, with 90.7% having primary and secondary education. Regarding caregivers, 66.7% of patients were cared for by family members, 29.6% cared for themselves and 3.7% having care services. 77.8% of patients have health insurance, of which 90.4% are registered at public health facilities. Common risk factors include hypertension (88.9%), dyslipidemia (68.5%), and diabetes (22.2%). The prevalence of smoking and alcohol abuse was 46.3% and 20.4%, respectively, mainly in men. The majority (83.3%) of patients had 2 or more risk factors.

Clinical manifestations:

Research results showed that the basic neurological clinical manifestations before treatment of 54 patients with ischemic stroke included hemiplegia/weakness (96.3%), hemi-sensory disorders (29.6 %), cranial nerve palsy (64.8%), speech disorder/aphasia (50%) and 2 cases of transient ischemic attack (3.7%).

According to the NIHSS scale, the majority of patients are mild to moderate level (1-15 points). Regarding treatment, 14.8% of patients received intravenous thrombolysis and 16.7% received instrumental thrombectomy. Most vascular blockages are concentrated in small cerebral arteries (51.9%) and middle cerebral arteries (40.7%). Regarding rehabilitation treatment, 70.4% of them practice at home and 25.9% at the hospital.

Quality of life of patients after ischemic stroke

The study results showed that there was a significant improvement in all assessment aspects of the EQ-5D-5L scale from the point of discharge (T0) to after 3 months (T1). At the time of discharge, only 35.2% of patients had no mobility problems, but this number increased to 78.0% after 3 months. The percentage of patients who had no problems in self-care increased from 44.4% to 82.0%. There was a similar improvement, with the proportion of patients without difficulty performing normal activities increasing from 38.9% to 82.0%. The proportion of patients without pain/discomfort increased slightly from 64.8% to 72.0%. There was a significant improvement with the proportion of patients having no anxiety/depression by an increase from 42.6% to 82.0%. (figure 1)

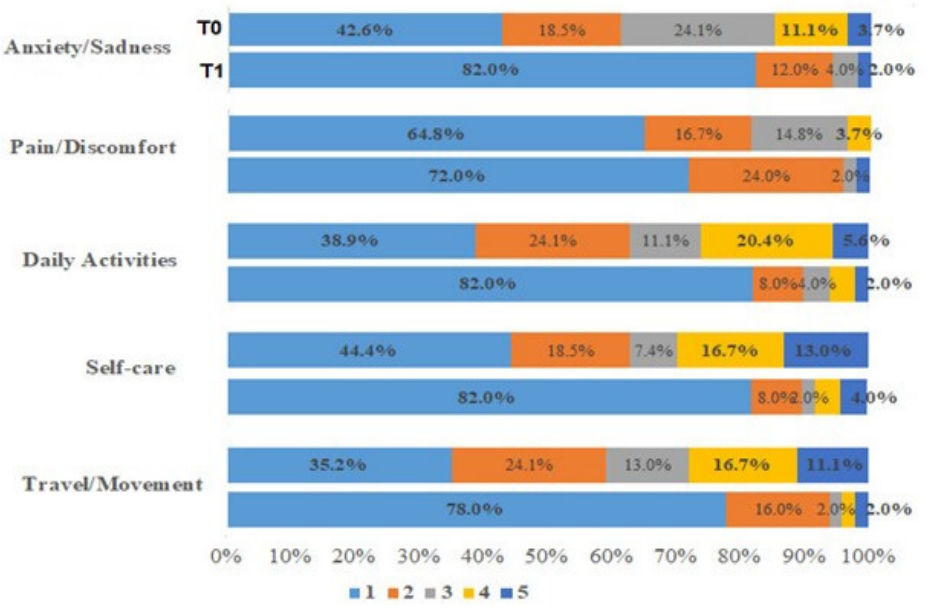

Figure 1. Distribution of EQ-5D-5L scores of 5 aspects with 5 levels colors each at the point of discharge (T0) and after 3 months (T1)

All of the above improvements are statistically significant ($p < 0.001$) (Table 1). This not only shows the effectiveness of treatment and rehabilitation but also emphasizes the importance of multidimensional monitoring and intervention to improve quality of life after ischemic stroke. This is also reflected in the EQ-index total score increasing from 0.671 to 0.894 and the VAS score from 63.24 to 81.9 after 3 months, both of which also have significant improvements in quality of life. A decrease in mRS index from 3 to 2 also demonstrated a reduction in disability and an increase in independence after 3 months.

Table 1. Quality of life at the point of discharge (T0) and after 3 months (T1)

Aspects	**T0 (n = 54) Median (Percentile Range)**	**T1 (n = 50) Median (Percentile Range)**	**p***
Walk	2 (3)	1 (0)	< 0.001
Self - care	2 (3)	1 (0)	< 0.001
Normal activities	2 (3)	1 (0)	< 0.001
Pain/Discomfort	1 (1)	1 (1)	0.034
Anxiety/Depression	2 (2)	1 (1)	< 0.001
mRS score	3 (2)	2 (0)	< 0.001
Aspects	**T0 (n = 54) Mean (SD)**	**T1 (n = 50) Mean (SD)**	**p***
EQ-index	0.671 (0.299)	0.894 (0.238)	< 0.001
VAS score	63.24 (20.1)	81.9 (15.9)	< 0.001

**Wilcoxon signed-rank test*

4. DISCUSSION

The results from our research project show that male patients with ischemic stroke account for a higher rate than female patients with 61.1% and 38.9% respectively, the male/female ratio is 1.57. This result is consistent with many studies by domestic and foreign authors with a higher rate of men suffering from ischemic stroke than women [8][9][10][11].

In terms of age of ischemic stroke: the elderly group accounts for a higher proportion than the younger group, the average age in the study patient group is 58.7 ± 11.27 (the lowest is 33 years old and the highest is 83 years old). Compared to some domestic studies, specifically by author Le Van Thinh, the average age of patients with ischemic stroke is 62.3 ± 8.8 [12], by author Duong Minh Tam is 64.02 ± 11.34 [13], and by Nguyen Thi Hien is 64.7 ± 8.9 [14]. The analysis results on age of ischemic stroke from our study are also quite similar. This may support the hypothesis that ischemic stroke mainly affects older people, but is also a problem that needs attention in younger people.

Results from our study also show that focal neurological signs occur right from the onset of the disease and persist in the following days at a very high rate. 1 week after disease onset, we recorded that 96.3% of patients showed signs of motor deficits. Author Le Tran Thang's research results were that 80.0% of patients had motor deficits, 29.6% of patients had sensory disorders, 64.8% of central nerve VII paralysis, and 50% of dysarthria/aphasia. According to author Le Van Thinh [12], hemimotor paralysis accounts for 90.9%, followed by sensory disorders in patients with ischemic ischemic stroke of the internal carotid artery system. Thus, early identification and timely treatment of focal neurological manifestations in patients with ischemic stroke can improve treatment outcomes and minimize long-term consequences.

The patient's clinical condition is shown quite fully in the NIHSS score assessment results. The more severe the clinical condition, the higher the NIHSS score. The patient group in our study mostly had average NIHSS scores, meaning the clinical symptoms were not too severe. According to Tomsick et al., hospitalized patients with NIHSS scores of 7 or less (mild ischemic stroke) and 8 to 14 points (moderate ischemic stroke) will have the highest neurological recovery [15]. In our study, mild and moderate NIHSS scores accounted for 94.4%. This is a fairly similar level compared to the data of some standard studies by other authors such as: Francisco (Brazilian) - 6.6

points, Sylvia Cae (France) - 7.0 points, Duncan (USA) - 12.1 points and the above scores are all ranked at moderate level [16][17][18]. However, it is possible that the samples of the studies are quite small, not highly representative, and need to take into account racial characteristics and symptom recognition errors in assessing NIHSS scores, so the distribution level does not cover the severe and very severe level of diseases among patients.

In our study, 70.4% of patients received rehabilitation treatment. The patient's recovery results after rehabilitation depend on many factors. According to research by author Duong Thu Hong and colleagues: In the age group of 60 and under, the rate of good exercise is 92.31%, much higher than in the group over 60 years old, which is 20% ($p < 0.05$). Patients with mild neurological deficits according to the NIHSS scale have good functional recovery results at 100% ($p < 0.05$) [19]. Thus, early and active intervention is necessary in rehabilitation treatment for patients with ischemic stroke, especially in those under 60 years old and with mild NIHSS scores. This also supports the notion that focusing on factors such as age and disease severity can help improve treatment outcomes and post-treatment quality of life for patients.

Among the aspects of patients' quality of life at the point of discharge from the hospital after ischemic stroke, mobility, self-care and normal activities have the highest score of 2. Pain/discomfort has the lowest score of 1. This can be explained by the fact that in our study, up to 96.3% of patients had motor paralysis but only 29.6% of patients had sensory disorders on one side of the body causing pain/discomfort. Therefore, the above scores are quite consistent with clinical characteristics. The assessment of quality of life after ischemic stroke needs to consider the patient's specific clinical aspects and the score in different aspects can help better understand the impact of the diseases on their daily lives. This also aids in planning interventions and supporting post-treatment recovery.

The results of this study are similar to many studies such as that of author Ha Xuan Kien in which walk, self-care and normal activities also have nearly the same conversion points of 0.18 ± 0.12, 0.10 ± 0.06 and 0.11 ± 0.07 [20]. Among the aspects, after 3 months, mobility, self-care, normal activities and anxiety/depression had equally high scores of 1 point, consistent with author Cao Phi Phong's research with scores on mobility, social activities, daily activities and emotions after 3 months were 43.12 ± 7.53; 38.24 ± 5.14; 50.95 ± 8.57 and 38.9 ± 6.36 using SIS scale (Stroke Impact Scale) [21]. Comprehensive assessment of quality of life aspects during rehabilitation helps determine appropriate goals and interventions for each patient.

When comparing quality of life between 2 points in the EQ-5D-5L scale, the aspects of mobility, self-care, and normal activities had a statistically significant improvement ($p < 0.001$) in scores from 2 to 1, the pain/discomfort score alone had little change after 3 months compared to the time of discharge from the hospital. This result is also consistent with statistics from the American Heart Association, which recorded that up to 42% of patients had a pain lasting 4 to 6 months after a stroke. The average score of the EQ-5D-5L scale at the point of discharge from the hospital and 3 months after ischemic stroke had a statistically significant difference with scores of 0.671 (0.299) and 0.894 (0.238) with $p < 0.001$. Because up to the present time, there has been no medical record comparing the change in quality of life before and after 3 months using the EQ-5D-5L scale, so we temporarily compared it with studies evaluating quality of life using the EQ-5D-5L scale, using other scoring scales, such as author Cao Phi Phong's study: An increase by 29.59 ± 6.89 to 34.27 ± 4.87 (SIS scale) [21], or Amr Kamel's study: An increase by 59.6 ± 15.2 to 68.66 ± 17.3[17]. VAS scores in the EQ-5D-5L scale also recorded a significant difference with scores of 63.24 (20.1) and 81.9 (15.9), respectively; $p < 0.001$. Thus, improving quality of life after ischemic stroke is a complex and multidimensional process, with significant improvement in some specific aspects but challenges remaining in other aspects such as pain/discomfort. Comparisons with other studies also demonstrate the diverse

nature of recovery outcomes after ischemic stroke, requiring consideration of both clinical factors and self-reported assessments to better understand recovery and patient support.

5. CONCLUSION

This study has shown that the quality of life of patients after ischemic stroke significantly improves after three months of treatment and rehabilitation, especially in the aspects of mobility, self-care and normal activities. However, issues related to pain and discomfort remained challenging, with little improvement after three months, reflecting the need for effective pain management during recovery. Analysis shows that assessing quality of life after ischemic stroke requires multidimensional consideration, including clinical factors and patient feedback. This result not only provides important information about the recovery process after ischemic stroke but also suggests aspects that need attention in post-treatment support and intervention to improve overall quality of life of patients.

6. RECOMMENDATIONS

It is highly recommended to enhance rehabilitation programs, especially in mobility, self-care and normal activities; develop more effective pain management strategies; perform a comprehensive quality of life assessment, incorporating both clinical factors and patient feedbacks; provide psychological and social support to patients and families; raise awareness as well as train medical staff on comprehensive intervention methods. These measures aim to improve the overall health and quality of life for patients after ischemic stroke.

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