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Assessment of health related quality of life in stroke patients in a tertiary care hospital

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Abstract
Objectives: To assess the health related quality of life in stroke patients using Stroke Impact Scale Version 3.0 in a tertiary care hospital.
Methods: A Prospective observational study was conducted in75 stroke patients for a period of 6 months in Vivekanandha Medical Care Hospital, Elayampalayam. Baseline characteristics in stroke patients were analysed and counseling was provided using patient information leaflet. Health related quality of life was assessed at baseline and after 90 days follow up using SIS version 3.0 questionnaire.
Results: Health related quality of life was mainly affected in social participation (13.2 ± 10.7) and mobility (15.8 ± 11.1) domains at baseline. The mean differences were higher among the domains of strength (37.4 ± 2.0), mobility (34.4 ± 0.6) and memory (29.1 ± 2.1).The least mean differences were observed in the domains of emotion (16.7 ± 0.9). Significant improvement was found in all the domains (P value<0.05) during follow up.
Conclusion: Stroke can leave an individual with residual impairment of physical, psychological, social and cognitive function which affects their health related quality of life. Educating the patients using leaflet and pharmaceutical care after stroke can improve health related quality of life.

Keywords: stroke, health related quality of life, stroke impact scale version 3.0

Introduction

World Health Organization defines Stroke as 'a clinical syndrome consisting of rapidly developing clinical signs of focal (or global in case of coma) disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin' [1]. Stroke causes sufficient decrease in quality of life even among those who have no post stroke disability [2]. HRQOL is important to measure as it is an indication of outcome after stroke. Depending on the severity and type, a stroke can leave an individual with residual impairment of physical, psychological, social and cognitive functions. HRQOL is a multi-dimensional concept that includes domains related to physical, mental, emotional and social functioning that has been emphasized as an important index of outcome after stroke; therefore, its measurement is important [3]. Stroke impact scale (SIS) version 3.0, a stroke specific outcome measure, and more comprehensive measure of health outcome was designed. This includes 59 items and assesses 8 domains (strength, hand function, activities of daily living, mobility, communication, emotion, thinking and social participation). Measurement of HRQOL after stroke would provide researchers with a more holistic picture of stroke recovery, especially because of the wide spectrum of symptoms and impairments associated with stroke. Knowledge of factors associated with HRQOL after stroke would provide valuable information about strategies that professionals and providers of stroke care can address to improve HRQOL for stroke patients [4].

Methodology

A Prospective observational study was conducted in 75 stroke patients with the approval of the institutional ethical committee for a period of 6 months in Vivekanandha Medical Care Hospital, Elayampalayam. A patient consent form was prepared and obtained written consent from all the patients or from the caregivers after providing the information format. An extensive literature survey was performed regarding the different aspects that should be considered while doing the study. About 86 stroke patients were screened and 75 were included in this study after getting patient's consent. Patients of age above 18, who had radiologically confirmed diagnosis of stroke using Computed Tomography (CT) / Magnetic Resonance Imaging (MRI) scan and receiving drugs for the management of stroke with at least 4 weeks of hospital stay, were included in the study.Pregnant or lactating women, patients with brain tumor and dementia were excluded from the study. The Stroke Impact Scale or SIS version 3.0 was used to assess changes in impairments, disabilities and handicaps following a stroke and scores were entered by a face to face interview using stroke specific questionnaire. It includes 59 questions which assess 8 domains like strength, memory and thinking, emotions, communication, activities of daily living (ADL), mobility, hand function and social participation. Scoring is done for these domains and calculated for the recovery of stroke in the individuals. Scores are expressed on the scale range from 0-100. Higher score indicate better quality and lower score reflect poor quality of life.

Statistical Analysis

The statistical analysis was done using Microsoft Excel and

Graphpad version 3.10. Collected data's were entered in Microsoft excel spreadsheet for further interpretations. Patient demographics were assessed by descriptive statistics. Student –t test was used to assess the HRQOL of stroke patients.

Results

The health related quality of life of the patients was assessed with a stroke specific questionnaire called Stroke Impact Scale version 3.0. The scale includes a total of 8 domains with 59 items. The domains covered were strength, memory, emotion, communication, ADL, mobility, hand function and social participation. Stroke severity was assessed by taking the mean and SD of individual domains at onset and after 90 days follow-up. At baseline the mean of the scores were lower with the domains of social participation (13.2), mobility (15.8), hand function (16.2), strength (17.5) and ADL (17.8). After 90 days the mean of the scores were lower with the domains of social participation (34.9), hand function (42.3), emotion (43.2), ADL (44.5) and mobility (50.3). The mean differences were higher among the domains of strength (37.4 ± 2.0), mobility (34.4 ± 0.6) and memory (29.1 ± 2.1).The least mean differences were observed in the domains of emotion (16.7 ± 0.9). There was significant change in all the domains (P value< 0.05).

Table 1: SIS Domain Scores at Baseline and After 90 Days Follow Up in Stroke Patients (n=75)

Sl. No.	SIS scale domains	Mean ± SD		Mean difference
		Baseline	After 90 days	
1	Strength	17.5 ±7.7	55±9.7**	37.4 ± 2.0
2	Memory	39.2 ±61.2	59.1±10.7*	29.1 ± 2.1
3	Emotion	26.4±11.5	43.2±10.6**	16.7 ± 0.9
4	Communication	32.5±13.3	61.2±12.5**	28.7 ± 0.8
5	ADL	17.8±12.6	44.5±12.5**	26.6 ± 0.1
6	Mobility	15.8±11.1	50.3±11.8**	34.4 ± 0.6
7	Hand function	16.2±9.8	42.3±11.8**	26.0 ± 2.0
8	Social participation	13.2±10.7	34.9±12.0**	21.8 ± 1.3

SIS- stroke impact scale, **SD**- standard deviation, **ADL**- activities of daily living * p < 0.05, ** p<0.001

On a 0-100 scale, 100 was considered as the ceiling effect which denotes a better quality of life or full recovery and 0 was considered as poor quality of life or no recovery. Hand function was associated with more possibility of floor effect with least score of 16. Communication domain with a score of 88.5 was associated with more possibility of ceiling effect (Table: 1)

Table 2: Stroke Severity Measurement with Floor and Ceiling Effects (n = 75)

Sl. No.	SIS scale domains	Floor effect	Ceiling effect
1	Strength	35	80
2	Memory	31.4	74.2
3	Emotion	20	73.3
4	Communication	28.5	88.5
5	ADL	18	80
6	Mobility	17.7	71.1
7	Hand function	16	72
8	Social participation	17.5	70

In male patients there was significant difference (p value <0.001) between baseline and after 90 days follow up in all the domains

Table 3

Sl. No.	SIS scale domains	Mean± SD		Mean difference
		Baseline	After 90 days	
1	Strength	17.5 ± 7.0	54.2 ± 9.7**	37.0 ± 2.6
2	Memory	38.1 ± 65.2	59.4 ± 11.3**	29.8 ± 2.3
3	Emotion	25.9 ± 11.7	42.6 ± 10.6**	16.7 ± 1.1
4	Communication	32.1 ± 14.1	61.1 ± 13.2**	29.0 ± 0.8
5	ADL	17.2 ± 12.1	44.2 ± 12.1**	26.9
6	Mobility	14.1 ± 9.1	49.1 ± 12.6**	35.0 ± 3.4
7	Hand function	14.9 ± 9.2	43.1 ± 11.5**	28.1 ± 2.2
8	Social participation	11.3 ± 8.8	34.3 ± 11.3**	23 ± 2.5
***SD**-standard deviation*, ** p<0.001				

In female patients there was significant difference (p value <0.001) between baseline and after 90 days follow up in all the domains

Table 4

Sl. No.	SIS scale domains	Mean± SD		Mean difference
		Baseline	After 90 days	
1	Strength	18.3 ± 9.0	56.6 ± 9.8**	38.3 ± 0.8
2	Memory	41.6± 53.0	58.6 ± 9.6**	27.7 ±1.6
3	Emotion	27.5 ±11.2	44.4 ± 10.8**	16.8 ± 0.4
4	Communication	33.3 ±11.8	61.5 ± 11.1**	28.1 ± 0.7
5	ADL	19.0 ±13.9	45.1 ± 13.4**	26.0 ± 0.5
6	Mobility	19.5 ±14.0	52.8 ± 9.5**	33.3 ± 4.5
7	Hand function	19.0 ±10.6	40.6 ± 12.6**	21.6 ± 1.9
8	Social participation	16.8 ±13.3	36.2 ± 13.6**	19.3 ± 0.2

SD- standard deviation, **p<0.001

Discussion

Stoke is a medical emergency condition that results in loss of function relative to the damaged part of the body.

Assessment of HRQOL at baseline reveals that domains like social participation (13.2±10.7), mobility (15.8±11.1) and hand function (16.2±9.8) were most affected while memory (39.2±61.2) was least affected. After 90 days floor effect was observed in hand function (16%) and ceiling effect in communication (88.5%). There was improvement in HRQOL after 90 days (P value < 0.05). The study conducted by S. Sriram *et al*. observed a diminished scoring for physical domains of the patient such as strength, mobility, hand function and activities of daily living [5]. Male patients shows better outcome when compared to female patients after 90 days of follow-up. Our findings are consistent with the results of S. A. Abubakar *et al*. [6].

Conclusion

Stroke leaves an individual with residual impairment of physical, psychological, social and cognitive function which affects their health related quality of life. The present study indicates diminished scoring for social participation, mobility and hand function. Educating the patients using leaflet after stroke improved the health related quality of life.

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