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Assessment of Health Related Quality of Life in Stroke (Cerebrovascular Accidents) Patients

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ABSTRACT

To assess the influence pharmacist provided patient education on Health Related Quality of life in patients with cerebro vascular disease. This was a prospective observational and interventional study conducted in neurology department at JSS hospital, Mysore. Morisky medication Adherence Scale (MAS), Validated Stroke Specific Quality of Life Questionnaire (SSQoL), was applied to assess the medication adherence behavior and HRQoL in the enrolled patients. At the end of the study period, 78 patients completed all the study follow-ups and 2 patients were considered as drop outs because of the missed follow-ups. The male population (75%) was three folds predominant than the female population (25%) in the study. Hypertension was observed as the major risk factor for stroke in the study patients. At the end of the study, a statistically significant improvement ($P < 0.005$) in the quality of life score and MAS score was observed in the study patients. Pharmacist provided education to stroke patients regarding proper management of disease and importance of medication adherence has improved therapeutic outcomes and health related quality of life.

Keywords: Health Related quality of life; Stroke Patients.

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INTRODUCTION

Cerebrovascular accident (CVA), is the sudden death of brain cells due to inadequate blood flow. World Health Organization (WHO) defines stroke as rapid development of clinical signs and symptoms of a focal neurological disturbance lasting more than 24 hours or leading to death with no apparent cause other than vascular origin¹. An individual's risk of having stroke increases substantially as he or she ages, with a doubling risk for each decade after the age of 55.² The prevalence of stroke is estimated to be 2.6% in the United States³.

Hypertension and hypercholesteremia are reported to be the major risk factors in stroke patients at around 40%⁴. Other risk factors include cardiac diseases, diabetes mellitus, cigarette smoking and atherosclerosis². Many population based studies have revealed that the prevalence of stroke is higher in males compared to females. The stroke prevalence studies have been shown that it is high in American Indians, Alaska natives and the persons living in the south-eastern United States. The overall prevalence of stroke in American population is estimated as 2.7% in male and 2.6% in female.³ The prevalence of stroke in India was estimated as 203 per 1,00,000 population. The male to female ratio was found to be 7:1⁵.

Management of stroke include both nonpharmacological and pharmacological interventions. Nonpharmacological intervention includes the diet, physiotherapy, stress management, smoking cessation and rehabilitation programmes to improve gait, speech, dexterity and ability to manage activities of daily life.⁵ Pharmacological treatment includes acute treatment at the time of cerebrovascular event to relieve the signs and symptoms and to restore the function and preventive treatment is taken to reduce the reoccurrence of stroke². Stroke is considered as a long term disability with recurrent attacks and the major component of stroke is addressed through patient education regarding diet, activity, and stress management, smoking cessation, other techniques that reduce the risk of the attack and by the regular use of prophylactic medications⁹.

Adequate education helps the patient to understand the importance of medication adherence to achieve the desired therapeutic goals. Health related quality of life (HRQoL) related to stroke and life satisfaction after stroke are important healthcare outcomes that have not received sufficient attention in the literature. Factors affecting the quality of life may be different between young and old stroke patients¹⁷. These issues have not yet been properly investigated. Hence there is a need for the assessment of HRQoL in patients with stroke.

MATERIALS AND METHOD

The prospective observational study was conducted in the in-patients and out-patients neurology

department of JSS Hospital, over a period of 6 months. The institutional ethics committee approval was obtained prior to the initiation of the therapy.

Inclusion Criteria

In-patients of both sex aged above 20 years and who have been diagnosed to have cerebrovascular accident admitted both in neurology wards and those who could be followed for a minimum of two follow ups after the discharge were included in the study.

Exclusion Criteria

Patients who stayed for less than 24 hours in the hospital in-patient were excluded from the study.

Method

Patients meeting the study criteria were enrolled into the study after explaining about the study and obtained their written informed consent. At the enrolment, data pertaining to demographics, educational level, socio economic status, past medical history, alcohol and smoking history were collected. Structured patient education including patient information leaflet (PIL) was provided to all patients at the baseline visit. Stroke Specific Quality Of Life (SSQOL) Questionnaire was administered on all enrolled patients at the baseline visit. The SSQOL was re-administered at each follow up visit to assess the effect of stroke on health related quality of life (HRQOL). Medication Adherence in the study was assessed by applying Morisky Medication Adherence Scale which was asked to patients during baseline, first and second follow up. All enrolled patients were followed for a period of 3 months from the baseline visit with an interval of 30 days between follow ups. Results were analyzed using Statistical Package for the Social Sciences (SPSS) for windows version 16.0. Initially the age and gender distribution was compared between the test and control, to study the homogeneity between the two groups. The age and gender distribution was compared by using Contingency Coefficient test.

RESULTS AND DISCUSSION

A total of 80 patients were enrolled into study .out of which 78 patients completed all study follow-ups and 2 patients were considered as drop outs because of missed follow-ups.

Demography of the Enrolled Patients

Age and gender distribution of enrolled patients are presented in table 1.

Table 1: Demographic Details of the Patients

Demographic Characteristics		Number Of patients	Percentage (%)
Gender	Male	59	75.65%
	Female	19	24.35%
Age	<50	13	16.67%
	51-60	17	21.79%

	61-70	34	43.58%
	71-80	10	12.82%
	>80	4	5.12%
Education	Illiterate	48	61.53%
	Primary school	9	11.53%
	Secondary school	7	8.97%
	Pre-university	2	2.56%
	University	12	15.38%
Employment status	Employed	37	47.2%
	Unemployed	21	26.9%
	Agriculture	21	26.9%

In our study majority of the patients were from the age group of 61-70(43.58%) followed by 51-60 (21.79%). The male population (75.65%) was three folds predominant than the female population (24.35%) in the study. Risk factors such as smoking and drinking are prevalent in men when compared with women. This is why men are at more risk to have stroke than women.⁵The details pertaining to risk factors is presented in Table 2.

Risk Factors

Table 2: Risk Factors of Stroke in Study Population

Risk factors	Number of patients	Percentage(%)
Smoking	30	37.5
Hypertension	54	67.5
Diabetes mellitus	18	22.5
Deep Vein Thrombosis	1	1.25
Ischemic Heart Disease	4	5

In our study the majority of the patients were hypertensive [54(67.5%)], diabetics [18(22.5%)], and also smokers [30(37.5%)]. These are considered as risk factors for stroke. Patients also had risk factors like Deep Vein Thrombosis [1 (1.25%)] and Ischemic Heart Disease [4 (5%)].

Influence of Patient Education on Medication Adherence Behaviour of Stroke Patients

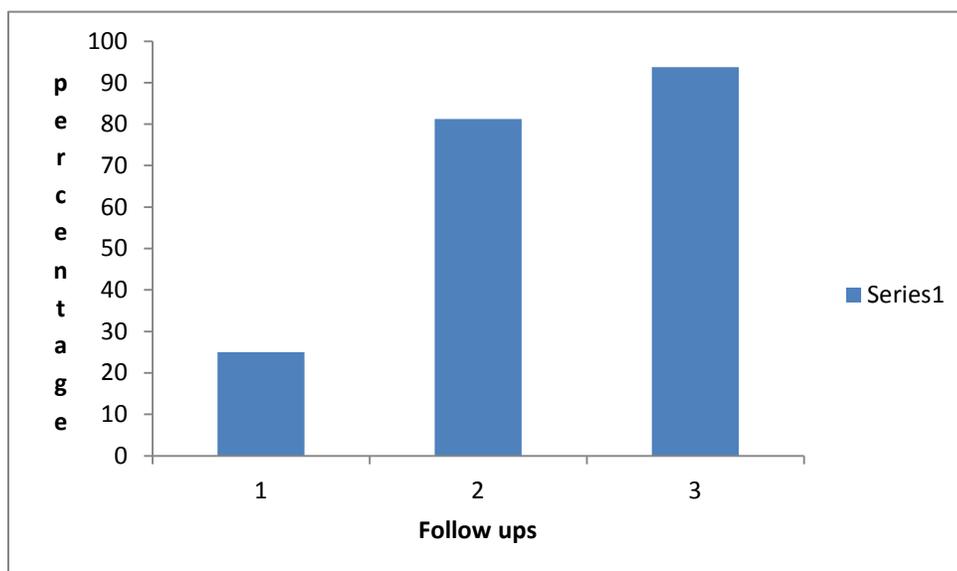
Table 3: Influence of education on MAS score

Patients	Visits					
	Baseline		Follow up 1		Follow up 2	
	Mean	SD	Mean	SD	Mean	SD
	3.24	0.844	3.02	1.01	3.04	1.03
Significance <0.05						

It was found that there was significant increase in the MAQ score of the patients from baseline to follow up 2.

Table 4: Details of High Medication Adherence Patients

	Baseline	Follow up 1	Follow up 2
Number of patients	20	65	75
Percentage (%)	25	81.25	93.75

**Figure 2: Patients compliance with medication**

Patient education has an important role in patient's medication adherence behaviour. The information regarding the importance of taking medicines at proper timings along with other life style changes for effective management will improve patient's awareness and reduce the frequency of reoccurrence of stroke. A study was conducted by Johnson C to evaluate the medication adherence in stroke patients and observed that after counseling, 100% adherence to stroke medication³¹.

Assessment of Health Related Quality of Life in Stroke Patients

The quality of life of stroke patients was assessed by using a questionnaire called Stroke specific Quality of life Scale (SSQoL). This questionnaire is a 12 item questionnaire which assesses the overall QOL by determining functioning of 4 main domain such as physical domain, cognitive domain, social domain and emotional domain.

Physical Domain Assessment

It determines the extent to which performance of normal activities are limited by stroke. It includes 3 items and contains 16 questions. The scores of these questions for patients in baseline and at each follow up were calculated.

Table 5: Physical Domain QoL scores:

Patients	Visits					
	Baseline		Follow up 1		Follow up 2	
	Mean	SD	Mean	SD	Mean	SD
	37	17.05	41.59	17.46	48.99	17.57
Significance <0.05						

Between the follow ups:

Mean scores of the patients was increased from the baseline visit to the final follow up.

The sub-scale assesses the degree to which performance of normal physical activity is limited by stroke. It was observed that the increase in the scores of the patient group was statistically significant at a p value<0.05. This impact was due to patient education provided by the pharmacist who encouraged the patient to perform physiotherapy and thereby improving the physical function.

Cognitive Domain Assessment

Cognitive domain contains of 3 items and contains 11 questions that measure the degree to which the performance of the normal activity is interrupted due to stroke.

Table 6: Cognitive domain QoL scores:

Patients	Visits					
	Baseline		Follow up 1		Follow up 2	
	Mean	SD	Mean	SD	Mean	SD
	26.51	11.67	28.69	11.86	30.76	12.22
Significance <0.05						

Between the follow ups:

Mean scores of the patients was increased from the baseline visit to the final follow up.

This subscale assesses the degree to which performance of normal activities is interrupted by stroke. The patients had shown a significant improvement in the mean scores during follow up. This improvement was due to the patient education provided by the pharmacist who counseled the importance of adherence to medications like piracetam which reduces aphasia and improves the cognitive functioning.³²

Social Domain Assessment

Social domain comprises of 3 items which contains 11 questions that measure the extent to which the social activity is interrupted due to stroke.

Table 7: Social Domain QoL Score

Patients	Visits					
	Baseline		Follow up 1		Follow up 2	
	Mean	SD	Mean	SD	Mean	SD
	25.24	12.42	28.24	12.54	31.72	13.69
Significance <0.05						

Between the follow ups:

Mean scores of the patients was increased from the baseline visit to the final follow up.

This subscale assesses the extent to which the social activities are interrupted due to stroke. The patient group showed a significant improvement in the mean scores compared to baseline. This improvement in the patient group was because of patient education provided by the pharmacist to involve in rehabilitation program.

Emotional Domain Assessment

Emotional domain comprises of 3 items and contains 11 questions that measure the emotional effect of stroke.

Table 8: Emotional Domain QoL Scores

Patients	Visits		Follow up 1		Follow up 2	
	Mean	SD	Mean	SD	Mean	SD
	26.69	11.62	28.51	11.77	30.03	12.01
Significance <0.05						

Between the follow ups:

Mean scores of the patients was increased from the baseline visit to the final follow up.

This subscale measures the emotional effect of stroke. The mean scores of the patients were increased significantly during follow ups. Hence the influence of counseling showed a greater impact on emotional function and improved the quality of life in stroke patients.

Overall Quality of Life

The overall improvement was seen in the quality of life scores, which is a sub total of the four subscales of QoL questionnaire. Continuous education regarding the proper use of medication and life style changes has improved the patient's health, functioning capacity, family life, social life and ultimately their overall quality of life. A study by Johnson et al, found that the intensive education to stroke patients along with the routine medical management improved the clinical status in stroke patients and reduced the secondary occurrence of stroke³¹. A study conducted by Carina Hohmann et al, reported that the intervention group which received pharmaceutical care for patients in the intervention group. The pharmaceutical care process comprises of medication reviews and counseling interviews with regards to medicines, especially those for secondary prevention of stroke and risk factors such as hypertension, diabetes mellitus, and hyperlipidemia. It was found that the HRQoL of the patients in the intervention care did not change significantly, but a significant decrease in the HRQoL was observed in the control group¹⁶. The total quality of life

score in the patients was increased significantly from base line (115.37) to final follow up(147.58) [figure 3].

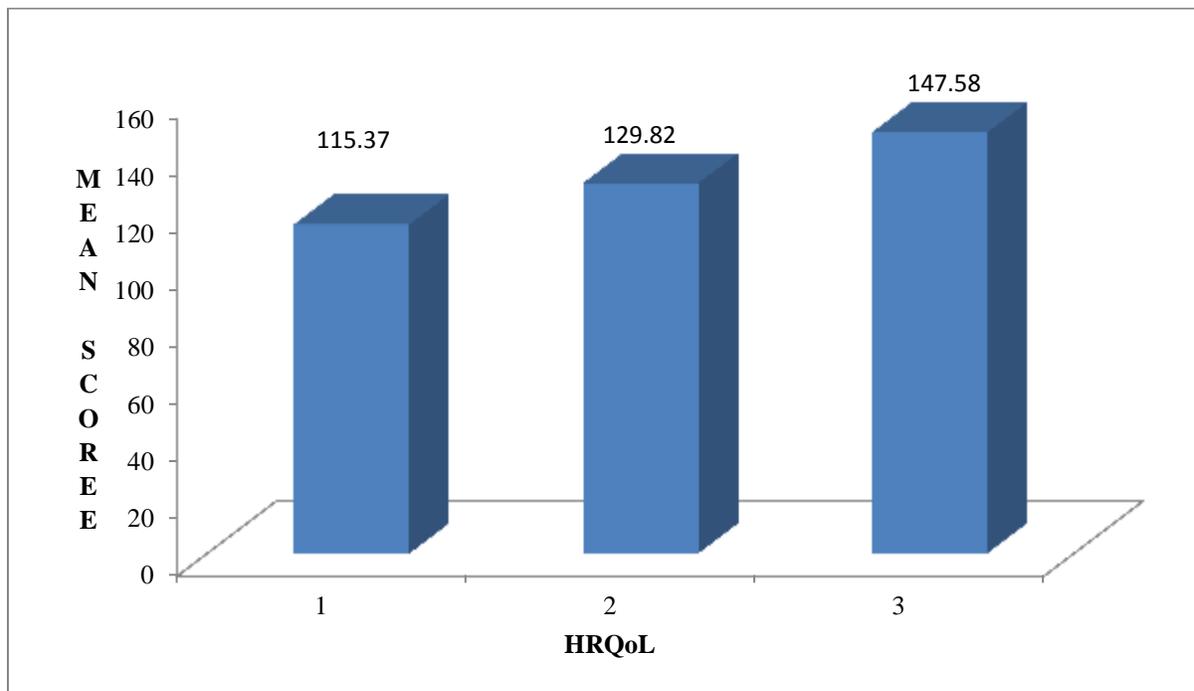


Figure 3: Overall QoL Scores

Hence in order to improve the therapeutics outcomes and the overall HRQoL in the patients suffering from stroke, the proper education about disease, medication and life style changes are very essential. The present study provides education and improves the patients' therapeutic outcome and overall HRQoL.

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