

Original Research Article

Analysis of Barthel index and care giver strain index in stroke patients in tertiary care hospital in South India

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ABSTRACT

Background: Stroke patients have high rate of mortality and morbidity and survivors suffer from physical, cognitive and emotional issues. Quality of life of stroke survivors depends on severity of disability. These disability or morbidities not only affect stroke survivors but also has impact on physical and psychological wellbeing of caregivers providing support for daily routine. Aim of this study is to analyse the dependency using Barthel Index in stroke patients and care giver strain (CSI) among caregivers.

Methods: A cross sectional descriptive study in a tertiary care hospital in South India. Study duration of 5 months. 150 Patients admitted for stroke meeting the inclusion criteria were included for the study. Caregiver was interviewed after Informed consent and briefing of purpose of study. Barthel index and modified care giver strain index questionnaire was filled by interviewer with caregiver. Findings were described in simple descriptive manner. Statistical package for the social sciences (SPSS) version 24 was used for statistical analysis.

Results: Of 150 patients male 64% female 36%. Care giver strain score of <7 (40%), 8-14 (42%), >14 (18%). Sleep deprivation 68%, physical strain 85%, family adjustment problems 32%, work adjustment problems 67%, financial strain 76%, emotional adjustment problems 33%, personal plans problems 44%, upsetting behavior problems 44%. Only 17% termed it as inconvenient, 24% completely overwhelmed, 29% confining. Barthel index of >80 able to live independently (13%), 61-80 minimally dependent (32%), 41-60 partially dependent (26%), 21-40 very dependent (13%), <20 total dependency (16%).

Conclusions: In stroke care caregiver strain is high when patient is dependent for routine activities. This includes physical as well as psychological strain. There is need to develop strategic home based or community based programs to reduce caregiver stress and improve their quality of life.

Keywords: Caregiver, Strain, Stroke, Barthel, Index

INTRODUCTION

Stroke patients have high rate of mortality and morbidity and survivors suffer from physical, cognitive and emotional issues. Various factors contribute to risk of stroke in a population. Care givers frequently have increased anxiety, depression and restrictions in attending social functions due to their care giving responsibilities.¹ Quality of life of stroke survivors depends on severity of disability. These disability or morbidities not only affect

stroke survivors but also has impact on physical and psychological wellbeing of caregivers providing support for daily routine. Care giver strain index used to assess strain in care givers have good reproducibility.²⁻⁴ Barthel index is commonly used scale to measure the dependance and disability in activities of daily living in stroke patients.⁶

Aim of this study is to analyse the dependency using Barthel index in stroke patients and care giver strain (CSI) among caregivers.

METHODS

A cross sectional descriptive study in Thoothukudi Government Medical College, Tamil Nadu a tertiary care hospital in South India. Study duration of 5 months (July 2022 to November 2022). 150 patients admitted for stroke in Government Thoothukudi Medical College were included in the study. Demographic profile including age, sex, medical history, risk factors, relationship with care giver, type and duration of stroke was noted. Caregiver was interviewed after informed consent and briefing of purpose of study. Barthel index and modified care giver strain index questionnaire was filled by interviewer with caregiver. Findings were described in simple descriptive manner. Study conducted after taking all ethical aspects into consideration. Statistical package for the social sciences (SPSS) version 24 was used for statistical analysis.

Inclusion criteria

Stroke patients with duration of stay of more than 5 days with informed consent were included.

Exclusion criteria

Patients with previous chronic morbidities and terminally ill patients were excluded.

RESULTS

Of 150 patients, male were 64% and female were 36%. Ischemic stroke was 65% and hemorrhagic was 35%. Mean age of the patient was 62.25±6.31 years. Patients in the age group <40 years 3%, 41-60 years 45%, 61-80 years 51%, >80 years 1%. Care giver included male 38% female 51%, >80 years 1%. Care giver included male 38% female

62%. Care giver to stroke patient were related as 54% son/daughter, spouse 26%, other relative 20%. Care giver strain score of <7 (40%), 8-14 (42%), >14 (18%) (Table 1). Sleep deprivation 68%, physical strain 85%, family adjustment problems 32%, work adjustment problems 67%, financial strain 76%, emotional adjustment problems 33%, personal plans problems 44%, upsetting behavior problems 44%. Only 17% termed it as inconvenient, 24% completely overwhelmed, 29% confining. Barthel index of >80 able to live independently (13%), 61-80 minimally dependent (32%), 41-60 partially dependent (26%), 21-40 very dependent (13%), and <20 total dependency (16%).

Table 1: Demographic profile.

Variables	N (%) (150)
Mean age	62.25±6.31
Age group (years)	
<40	3
41-60	45
61-80	51
>80	1
Gender	
Male	64
Female	36
Stroke	
Ischemic	65
Hemorrhagic	35
Care giver	
Male	38
Female	62
Son/daughter	54
Spouse	26
Other relative	20

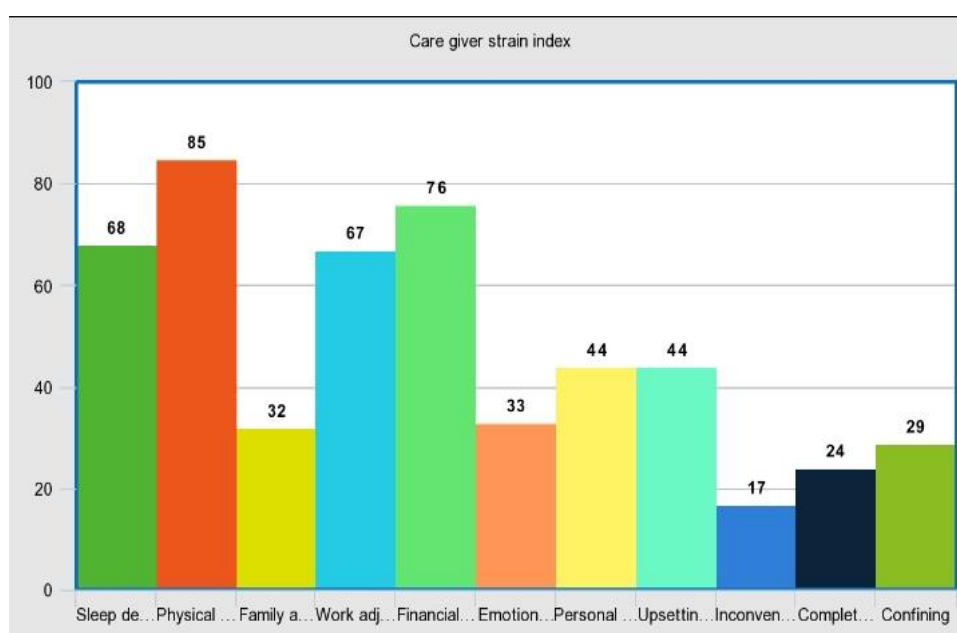


Figure 1: Distribution of individual components in CSI.

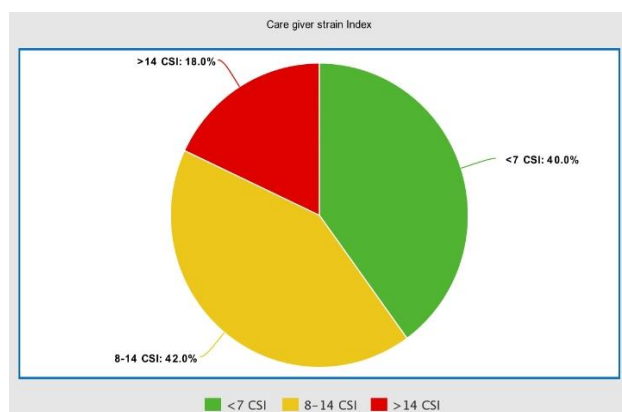


Figure 2: Distribution of total score in modified CSI.

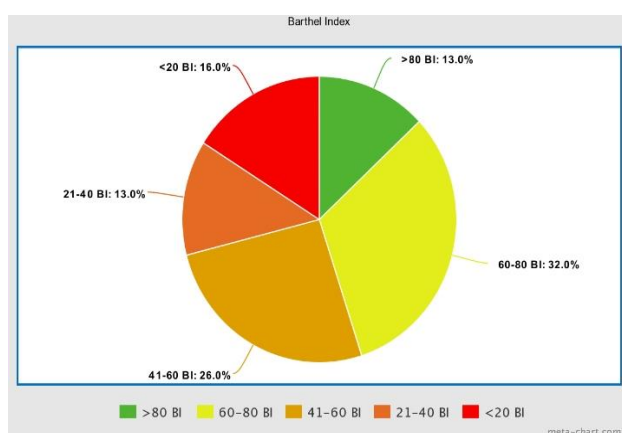


Figure 3: Distribution of Barthel index in stroke patients.

DISCUSSION

150 patients included 65% (98) had ischemic stroke, 35% (52) hemorrhagic stroke. Male patients constituted 64% female 36%. Mean age of the patients were 62.25 (Table 1). Majority of patients were in the age group 61-80 years (51%). Care givers were majority females (62%). 54% of the patients were taken care by son or daughter. 26% by Spouse et al and 20% by other relative.⁷ Majority of relative had sleep deprivation (68%) (Figure 1). Taking care of patient needs at night, since many patients are dependent even for basic needs like water on caregivers. Most of the relatives are new and are not accustomed to this care giving. This was associated with numerous factors.⁸ This was even difficult for single giver as they were not able to take rest during day also. 85% of care givers felt it to be physical strain. This was particularly for female care givers. This included difficulty in getting patient to washroom, daily needs. They required assistance from others. This was a reason for depression considering going through a phase of taking care of loved ones who were well previously to completely dependent without any anticipation. 32% reported family adjustment problems. This was more particularly when relative other than spouse was the care giver. This often a cause for unrest among family members regarding taking turns in care giving.

Financial matters also complicated the issue. These had impact not only on the care giver but also on mental health of patient. Sometimes this was a reason for denying further medical care. Work adjustment problem was reported by 67%. This was particularly with male caregivers more with relatives other than Spouse or son/daughter. Lack of family adjustment complicated the matter. Financial implication for the family and that of caregiver was matter of concern. Most of the patients are from poor socio economic background. Inability to work financial strain adding to the stress and frustration involved in caregiving. Financial strain was concern in 76%. This was a major concern. Majority of patients are from fishing community, farmers, labourers earning their daily living. It is a major concern even if there is no cost involved in treatment as such since they have to support their family members. Emotional adjustment problems in 33%. Many reported that it was sad for them to see the changes in their beloved ones. This can lead to emotional strain.⁹ This was unexpected for most of the relatives. Unexpected turn of events some of them required psychiatric counselling. Personal plans problems in 44%. This was not a concern for spouse. More among other relatives. Upsetting behaviour problems 44%. This was particularly due to behavior change in patient. Emotional lability in patients due to ailment effect care giver.¹⁰ Anxiety and depression are common among stroke patients.¹¹ It has psychological effect leading to depression. Only 17% termed it as inconvenient, 24% completely overwhelmed, 29% confining. This was more from distal relatives. There was associated with anxiety particularly regarding prognosis, anticipated duration of stay in hospital.¹² These required extended counselling. This was more with advanced age group.¹³ In the previous study 37% were experiencing strain even after 6 months of stroke.^{14,15} This can effect patient if not resolved, 18% had modified care giver index score of >14 (Figure 2), 42% scores between 8-14, 40% had scores less than 7.¹⁶ Analyzing the Barthel index in patients, a score of >80 in 13%. These patients had less severe stroke and were able to do activities independently. Care giver strain was less among this group of patients and duration of hospital stay was also reduced compared to those with lower Barthel score. A score of 61-80 of Barthel index signifying minimally dependent was there in 32% (Figure 3). In this group also prognosis was good. Strain was less among care givers. Patients with partial dependency had score of 41-60 were 26%, Barthel index of 21-40 in 13% were very much dependent and score of <20 were totally dependent. Care giver strain index was higher in in those with score of <60. There is negative correlation of Barthel index with care giver strain index.¹⁷ The more the disability greater the strain among care giver.

Limitations

This study was done in single institute with limited study population. A multicenter study involving larger study population with varied cultural practices will enable to analyse multiple factors involved in patient care in a more definitive manner.

CONCLUSION

In stroke care caregiver strain is high when patient is dependent for routine activities. This includes physical as well as psychological strain. There is need to develop strategic home based or community based programs to reduce caregiver stress and improve their quality of life.

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