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POST-OPERATIVE FUNCTIONAL OUTCOME AND DISABILITY AMONG PERSONS SUFFERING WITH CEREBRAL ANEURYSM - A FOLLOW-UP STUDY

Neurosurgery

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ABSTRACT

Introduction: Cerebral aneurisms impact on patients and caregivers substantially in terms of functionality and quality of life. Objective: Study aimed to assess the post discharge functional status and disability levels of persons with cerebral aneurism in Indian context. Methodology: Descriptive research design with sixty participants, patients who underwent surgery attending follow-up with minimum duration of 6 months and measured functional status and level of disability with standardized tools. Results: Mean age of 49.50±10.27 years, functional recovery was observed well among illness survivors yet, complete functional recovery was far away. Conclusion: in the Indian context psychiatric social workers and mental health professionals working in the field of neurosurgical setting should take the lead role towards psychosocial problems and well-being of patient and their caregivers.

KEYWORDS:

Cerebral Aneurysm, Post-operative, Functionality, Disability, Follow - up

Introduction

Cerebral aneurisms impact on patients and caregivers substantially in terms of functionality and quality of life. Functional outcomes improves significantly between 4 months and 18 months post. The improved functional outcomes seems to be accompanied by an improved quality of life (QoL). Functional outcome and the QoL may change substantially between 1 month and 1 year after the haemorrhage. The time of outcome assessment might considerably influence the results of a clinical studies and its comparability with other studies. [(1)] Considerable proportion of persons with aneurisms are independent in self-care, instrumental, and activities of daily living. [(2)] Specific functions of a patients abilities will not represent the true condition and missed during routine follow-up. [(3)] In addition, studies also focused on physical dysfunction, cognitive impairments, and sleep disorders, depression also associated with cognitive impairment, functional impairment, family distress, personality changes, changes in family and poor quality of life. The majority of studies used telephonic semi-structured interview approach to assess the functional impact and yield insufficient, inconclusive data on physical and emotional dysfunctional. [(4)(5)]. Majority of studies carried on psychosocial issues of cerebral aneurisms are pre-dominantly confined in western countries. There is a paucity of evidence on psychosocial issues of aneurism patients since utmost focus is given to medical aspects. Thus, the current study aimed to assess the post discharge functional status and disability levels of persons with cerebral aneurism in Indian context.

Materials and Methods

The present study, adopted a descriptive research design. Descriptive research is description of the state of affairs as it exists at present. The main characteristic of this method is that the researcher has no control over the variables; he can only report what has happened or what is happening.[(6)] All persons suffering with cerebral aneurysm, who were undergone surgery at National Institute of Mental Health and Neurosciences, Bengaluru, and regular to follow-up over a period of 6 months above considered as universe of the study. The study used the purposive sampling method to recruit the subjects in the study. With the help of purposive sampling method overall, 60 participants were contacted during study period. Of which, 10 participants consented initially and then withdrawn during interview due to their personal reasons, 10 patients had 3 months follow-up, thus, excluded from the study. The rest of the 40 participants met the inclusion criteria and who gave consent for the study were included in the study. The inclusion criteria as follows; 1) all adults patients age ranged between 18 years, 2) patients who underwent surgery attending follow-up with minimum duration of 6 months and above, 3) patients who can communicate in Tamil, Kannada (vernacular languages) and English were included in the study. The socio-demographic sheet was prepared by the researcher and face validated. The participant's details such as; age, sex, education, place of residence, and marital status, and the type of family etc. To assess the participant's post-operative functional status the Glasgow coma outcome scale extended was used. This scale uses 6 possible outcome categories: consciousness, independence in home, independence outside home, work, social and leisure activities, family and friendships, and return to normal life. To measures the level of disability World Health Organization Disability Assessment Schedule (WHODAS) was used. It contains 36 items on functioning and disability with a 7 domains such as: understanding and commu nication, getting's around, self –care, getting along with others, life activities in house hold, life activities at work/school and participation in the society. Response options go from 1- having no difficulty to 5- having extreme difficulty or cannot do. Higher scores indicating higher level of disability. Both scales scale validity and reliability well established in medical conditions.

The R software was used to analyse the data. For continuous variables mean and standard deviation, for nominal and categorical variables frequency and proportional were calculated. To see the differences between selected variables Mann Whitney U was test was performed. The written informed consent was obtained from all the respondents after explaining the purpose of the study in their own language. The confidentiality was maintained and institute ethics committee was obtained from National Institute of Mental Health and Neurosciences, Bengaluru.

Results Table 1: Participant's socio-demographic details

Variable	Category	N (%)
Gender	Male	22 (55)
	Female	18 (45)
Marital status	Married	34 (85)
	Unmarried	06 (15)
Education	Literate	23 (57.5)
	Illiterate	17 (42.5)
Type of family	Nuclear family	20 (50)
	Joint family	20 (50)
Domicile	Rural	26 (65)
	Urban	14 (35)
Occupation	Daily wagers	26 (65)
	Working in private or public sector	14 (35)
Treatment category	Below Poverty Line (BPL)	22 (55)
	Non-BPL	18 (45)

Table 2: Symptoms and treatment details of Aneurism Survivors

Variable	Category	N (%)
Seizures	Yes	5 (12.5)
	No	35 (87.5)
Headache	Yes	31 (77.5)
	No	9 (22.5)
Vomiting	Yes	20 (50)
	No	20 50)
Difficulty in walking	Yes	4 (10)
	No	36 (90)
Loss of Consciousness	Yes	5 (12.5)
	No	35 (87.5)
Giddiness	Yes	3 (7.5)
	No	37 (92.5)
Altered sensorium	Yes	12 (30)
	No	28 (70)
Urinal Incontinence	Yes	1 (2.5)
	No	39 (97.5)
Diagnosis	Ruptured Aneurism	40 (100)
	Un-ruptured Aneurism	0 (0)
Treatment received (Surgical interventions, coiling, clipping)	Yes	40 (100)
	No	0 (0)

Table 3: Descriptive statistics of age, illness duration, duration of hospital stay and disability levels of aneurisms

Variable	N	Mean ± SD
Age	40	49.50 ± 10.27
Illness duration	40	48.32 ± 112.51
Duration of Hospital Stay	40	9.80 ± 6.04
Self-care	40	2.80 ± 2.62
Getting along with people	40	2.80 ± 2.33
Life activities	40	5.65 ± 3.81
Social Participation	40	11.57 ± 5.1

Table 4: The Post discharge functional status of persons with Aneurism

Items	Yes N (%)	No N (%)
Able to obey to the commands	40 (100)	0
Assistance of another person in home essential every day for some activities of daily living	0	40 (100)
Need frequent help or someone to be around at home most of the time	0	40 (100)
Assistance at home essential before the injury	40 (100)	0
Able to shop without assistance	40 (100)	0
Able to shop without assistance before injury	40 (100)	0
Able to travel locally without assistance	40 (100)	0
Able to travel locally without assistance before injury	40 (100)	0
Able to work to their previous capacity	5 (12.5)	35 (87.5)
Reduced work capacity	16 (40)	24 (60)
Able to work only in a sheltered workshop or non-competitive job or currently unable to work	30 (75)	10 (25)
Able to resume regular social leisure activities outside home	7 (17.5)	33 (82.5)
Participate a bit less; at least half as often as before injury	3 (7.5)	37 (92.5)
Participate much less; less than half as often	11 (27.5)	29 (72.5)
Unable to participate: rarely, if ever, take part	29 (72.5)	11 (27.5)
Engage in regular social and leisure activities outside home before injury	38 (95)	2 (5)
Psychological problems which have resulted in ongoing family disruption or disruption to friendships	29 (72.5)	11 (27.5)
Occasional-less than weekly	38 (95)	2 (5)
Frequent-once a week or more, but tolerable	24 (60)	16 (40)
Constant-daily and intolerable	25 (62.5)	15 (37.5)
Problems present with family or friends before the injury	24 (60)	16 (40)
Current problems relating to the injury which affect daily life	38 (95)	2 (5)
Similar problems present before the injury	32 (80)	8 (20)
Since the injury has the head injured person had any epileptic fits	32 (80)	8 (20)
Currently at risk of developing epilepsy	6 (15)	34 (85)
Effects of head injury/ illness/ injury on the part of the body	40 (100)	0

Table 5: Differences between gender, education and domains of domains of disability

Continuous Variable	Group	N	Mean Rank	U	Significance
Social Participation	Male	22	21.32	-2.23	0.02
	Female	18	19.50		
Self-care	Literate	22	15.93	-2.77	0.006
	Illiterate	18	26.08		
Life activities	Literate	22	15.75	-2.86	0.004
	Illiterate	18	26.31		

The participant's age was found to be 49.50±10.27 years. The medical expenditure was ranged from Rupees 400 to 5000 per month. Majority of participants 55% were male and 45% were female of which 85% married, 15 were single, literate 57.5% and illiterate were 42.5%. The table 1 shows the socio-demographic details. Patients presented with headache ache 77.5%, seizures 12.5%, vomiting 50%. All patients had been found to be suffering with ruptured aneurisms and undergone surgical interventions. Table 2 shows the symptoms and treatment details of aneurism patients. In addition to that, duration of illness was found to be 48.32 days on an average, and on average basis nearly 10 days they were hospitalized. Further, patients suffering with post-surgical disability levels of participants. They were improvements in disability levels among aneurism patients in the domains of self-care (2.80 ± 2.62), getting along with people (2.80 ± 2.33), life activities (5.65 ± 3.81), and social participation (11.57 ± 5.1). Post-operatively patients were able to able to obey to commands, able to shop, travel without assistance (100%), able to resume social leisure activities (82.5%), not able to work (87.5%), reduced work capacity (60%), effects on health (100%), psychological problems and disturbances in the family (72.5%). The functional recovery was observed well among illness survivors yet, complete functional recovery was far away. Table 4 show the descriptive statistics of age, illness duration of hospital stay and disability levels. In addition, there were differences were found in male aneurism survivors and female survivors ($U = -2.23$, $p < 0.02$), differences were in the domain of self-care between literate and illiterate ($U = -2.77$, $p < 0.006$), life activities ($U = -2.86$, $p < 0.004$). Table 3 shows the Mann Whitney U test results.

Discussion

Cerebral aneurysms may cause a variety of physical and psychosocial problems like akinetic mutism, bilateral weakness, behavioural changes, and cognitive deficits to those persons who suffering with them.[7] Many case series or retrospective studies focused on medical related issues and described clinical features of cerebral aneurysms. Researchers failed to give attention to understand the psychosocial, and functional issues that were associated with cerebral aneurysms. Thus, this current study holds significance in Indian context. This study found that participant's age was 49.50±10.27 years. The majority hailed from below poverty line and lower socio-economic background. On the other side, monthly medical expenditure was

Rupees 400 to 5000 which increased the financial burden on the patient and their family members. The socio-demographic details are similar to previous study conducted in Bangalore. [8]

The results showed that considerable proportion of patients had able to respond to oral commands, able to carry out self-care activities, able to shop, travel, participate in social activities, independently prior and after cerebral aneurism. On the other side, in this sample, work capacity had got reduced and not able to work at their previous capacity, periodical emotional problems were present at home, affected their activities of daily living, and all perceived cerebral aneurisms caused epileptic seizures and affects their psychological and physical health. This finding confirms the previous study reported that persons with aneurisms undergo physical, cognitive, emotional, social and vocational dysfunction. In contrast few individuals return to work.[9], [5] Mild to moderate level of disability also present among persons suffering with aneurism. This is finding is similar to other studies reported that after surgical interventions after 6 months good recovery was found. Less proportion of subjects experienced the mild to moderate disability and disability is also common. This could be because of vasospasm, bleeding, enlargement of aneurysm, evacuation of hematoma and extent of surgical interventions. [2][10]

The findings also showed that there were significant differences were found between male and female participants in disability domain of social participation. Many participants had better social participation compared to female respondents. This findings goes in line with previous studies reported that women with aneurysms have increased morbidity and less probability of survival rates when compared to men after surgical interventions.[11] Further, Illiterate people had better self-care and life activities compared to literate participants. In our clinical observation we found that illiterate people follow and adhere to treatment instructions given by treating team, whereas literate people gain knowledge from multiple sources and live in confused state. The social factors such as post-operative deficits, social support, and functional recovery might have influenced the same. However, this needs in-depth investigation to confirm on larger sample. Other hand, educational levels and age have influence on level of impairments and functionality reported elsewhere. [12]

Limitations of the study

The present study has certain limitations in terms of small sampling ruptured and un-ruptured aneurysm cases and small sample size, assessment is limited to only one time, and other illness characteristics which influence the functionality of the persons with aneurysms are not considered in the analysis. Thus, generalization of present findings are cautioned.

Conclusion

Most of the time, psychosocial issues among persons suffering with aneurisms and their caregivers are overwhelmed by many researchers in Indian context. Only less proportion of studies chosen functionality or quality of life as study variables in clinical setting, though there is a significant negative impact in terms of physical, cognitive, psychological, social, and financial domains among persons suffering with aneurysm and their family members. Thus, psychiatric social workers, and mental health professionals working in the field of neurosurgical setting should take the lead role towards to address the psychosocial problems immediately to ensure the psychosocial wellbeing, functionality, and quality of life of persons suffering with aneurysm, and their family members immediately from holistic care perspective.

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