

Functional outcome of stroke patients after two weeks physiotherapy management at a selected hospital

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Abstract

Introduction: Stroke is the second leading cause of global death including Southeast Asia region.

Objective: To find out the functional outcome of stroke patients after two weeks physiotherapy management.

Materials and Methods: A hospital based cross-sectional study was conducted at IBN SINA hospital, Dhaka. Total 105 patients were recruited for this study followed by purposive sampling technique. Data was collected by using a structured questionnaire and functional independence measurement (FIM) scale followed by face to face interview and observation of the activities of the patients.

Results: Study shows that minimum age of the respondents were 32 years and maximum were 79 years. Among the total respondents 48.60% were male and female were 51.40%. Comparing the sex distribution of the respondents, the proportion was higher for female (51.40%) than male (48.60%). Residential distributions of the

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respondents shows that proportion were higher from urban area (53.30%) than rural area (46.70%). According to classification of stroke, 70% were under ischemic and 30% were hemorrhagic stroke. Majority (91.4%) of the respondents were attending 6 to 10 physiotherapy session. Functional outcomes of the patients were measured followed by different indicators. There was significant association between age of the stroke patients & functional outcomes with rolling affected side to unaffected side, rolling unaffected side to affected side, sit to supine and gait ($P < 0.05$).

Conclusion: *After 2 weeks physiotherapy treatment the mean score was higher than initial mean scores of all functional outcome which indicate that more independent functioning.*

Key words: Functional Outcome, Physiotherapy Management, Stroke.

INTRODUCTION:

Stroke is the leading cause of morbidity & disability in the Asian population.¹⁻⁴ According to the World Health Organization, every year 15 million people suffer from stroke and among them 5 million expire and 5 million become completely disable.⁵ The occurrence of disability among stroke survivor is between 24–54%.⁶ In developing countries, over two-third of stroke patients was died.⁷ The incidence of stroke is increasing in developing countries like Bangladesh as compared with developed countries.⁸⁻¹⁰ In Bangladesh, there are 162.2 million people and among them 26% live in urban areas and the majority (74%) live in rural areas. The mortality rate of stroke has increased from 6.00% in 2006 to 8.57% in 2011 with an age-adjusted mortality rate of 108.31 per 100,000 populations in 2011.¹¹ Stroke rehabilitation is not available in Bangladesh like other developed countries. But rehabilitation is important for stroke patient to improve their functional activities. It is important to know that after rehabilitation how much it improves their functional ability, balance and quality of life. Stroke rehabilitation mainly was covered by multi-disciplinary team. Physiotherapy is a very important part of this multi-disciplinary team and Physiotherapy is the best treatment protocol for

stroke rehabilitation and prevention of complications associated with stroke. There were many research articles published about stroke rehabilitation for stroke but functional outcome after physiotherapy treatment is not so focused. The objective of this study is to find out the functional outcome of stroke patients after two weeks physiotherapy management at a selected hospital.

Objective: The objective of this study was to find out the functional outcome of stroke patients after two weeks physiotherapy management at a selected hospital.

Materials and Methods: Cross-sectional hospital based study was conducted to find out the functional outcome of stroke patients after two weeks physiotherapy management at a selected hospital. Hospitalized stroke patients were recruited as study population. This study was an academic part of the Masters course that's why it had to finish according to academic calendar. However the study duration was from august 2017 to April 2018. Ibn Sina Hospital, Dhaka was selected as study place where stroke patient was admitted and received physiotherapy management. Ibn Sina Hospital is 312 bed modern Hospital. There are 150 beds for stroke patients among 312 beds in this hospital. Purposive sampling technique was followed to select 105 samples. Stroke patients who were admitted in Ibn Sina Hospital & age not more than 80 years were included in this study. Patients with duration of stroke more than 3 months & unconscious patients were excluded in this study. A pre-tested structured questionnaire was used as data collection instrument. Functional outcome was measured before and after treatment by Functional Independence Measure (FIM) scale. Data were processed and analyzed by using Statistical package of social science, version 20. P-Value less than 0.05 was considered significant.

Ethical statement: Ethical clearance was obtained from Institutional Review Board which was the concerned authority of ethical committee of Bangladesh Health Professions Institute (BHPI) & Ibn Sina Hospital, Dhaka.

Functional Independence measurement (FIM) scale was designed to provide a consistent data collection tool compared to the rehabilitation results in continued health care. In addition, an FIM attempts to establish a way to collectively rehabilitate information. Designers were designed to do FIM so that they could track the effectiveness of their patients through rehabilitation care and follow-up. FIM scale was an 18-item scale, measures the degree of independence in the stroke survivor on a 7-point scale (7-Complete Independence to 1-Total Assistance). According to this scale, higher scores were representing more independent functioning. The FIM is regularly measured first at admission to the rehabilitative care and then at discharge from the care.¹²

RESULTS:

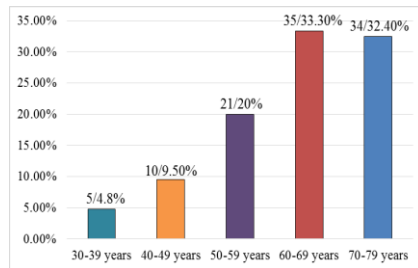


Figure-1: Distribution of the respondents by their age

Figure-1 found that the minimum age of a participant was 32 year and maximum age was 79 year. The maximum numbers of patients (35/33.30%) were in age group 60-69 year and minimum numbers were in age group 30-39 years (5/4.8%).

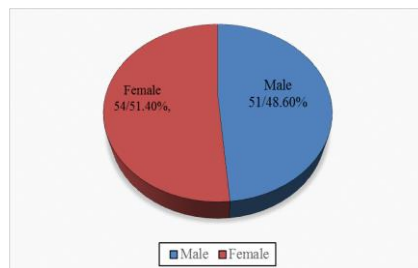


Figure-2: Distribution of the respondents by their age

Figure-2 showed that among the total respondents female were higher 54 (51.40%) than male 51 (48.60%).

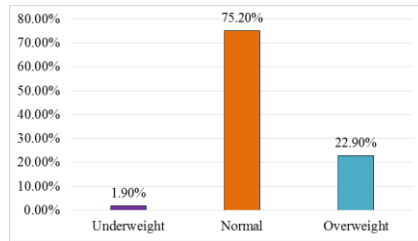


Figure-3: Distribution of the respondents by BMI

Figure-3 revealed that majority of the respondents was in normal (75.20%) according to BMI classification. Very few respondents were in underweight (1.90%).

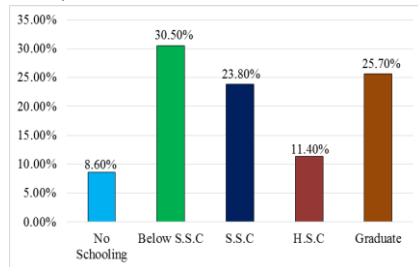


Figure 4: Distribution of the respondents according to their level of education

Figure-4 showed that about 31% of the respondents were under the category of below S.S.C level education whereas the second highest (25.7) level was graduated.

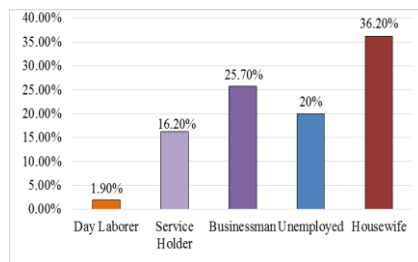


Figure 5: Distribution of the respondents by their occupations

Study showed that among the total respondents 36.20%, 25.70%, 20% & 16.20% were housewives, Businessman, unemployed & service holder respectively and only about 2% were bay laborer (Figure 5).

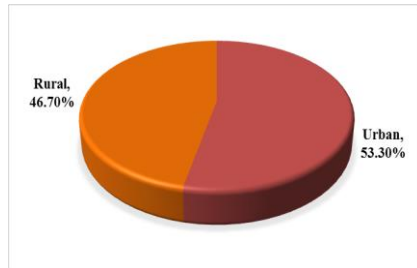


Figure 6: Distribution of the respondents by their residence

Study showed that the respondents were come from both urban and rural settings. More than fifty percent (53.30%) of the respondents were resided in urban area (Figure-6).

Table 1 showed that the respondents were attending different number of physiotherapy session. Majority of the respondents (91.4%) were attended 6 to 10 session.

Table 1: Distribution of the respondents by attending physiotherapy session

Physiotherapy Session	Number	Percentage
1-5 Session	4	3.8
6-10 Session	96	91.4
11-15 Session	5	4.8

Table 2 revealed that initial mean score of rolling affected side to unaffected side on FIM scale was 2.21 ± 1.13 and after 2 weeks physiotherapy treatment the mean score was 4.01 ± 1.22 . Initial mean score of rolling unaffected side to affected side on FIM scale was 2.91 ± 1.30 and after 2 weeks physiotherapy treatment the mean score was 4.86 ± 1.21 . Initial mean score of bridging on FIM scale was $2.47 \pm .98$ and after 2 weeks the mean score was 4.53 ± 1.20 . Initial mean score of supine to sit on FIM scale was $2.17 \pm .89$ and after 2 weeks the mean score was 4.10 ± 1.16 . Initial mean score of sit to supine on FIM scale was $2.75 \pm .97$ and after 2 weeks the mean score was 4.89 ± 1.15 . Initial

mean score of sitting static balance on FIM scale was 2.59 ± 1 and after 2 weeks the mean score 4.86 ± 1.18 . Initial mean score of sitting dynamic balance on FIM scale was $2.06 \pm .79$ and after 2 weeks the mean score was 3.79 ± 1.06 . Initial mean score of standing static balance on FIM scale was $2.04 \pm .73$ and after 2 weeks the mean score was $3.78 \pm .99$. Initial mean score of standing dynamic balance on FIM scale was $1.71 \pm .73$ and after 2 weeks the mean score was 3.17 ± 1.04 . Initial mean score of transfer from bed to chair on FIM scale was $2.11 \pm .71$ and after 2 weeks the mean score was $3.87 \pm .98$. Initial mean score of gait on FIM scale was $1.26 \pm .51$ and after 2 weeks the mean score was 2.66 ± 1.01 . After 2 weeks physiotherapy treatment the mean score was higher than initial mean scores of all functional outcome. According to FIM scale, higher scores were representing more independent functioning.

Table 2: Functional Outcome Related Information after 2 weeks physiotherapy management

Functional Outcome	Initial		After 2 Weeks	
	Mean score	SD	Mean score	SD
Rolling affected Side to Unaffected side	2.21	± 1.13	4.01	± 1.22
Rolling Unaffected side to affected Side	2.91	± 1.30	4.86	± 1.21
Bridging	2.47	$\pm .98$	4.53	± 1.20
Supine to sit	2.17	$\pm .89$	4.10	± 1.16
Sit to supine	2.75	$\pm .97$	4.89	± 1.15
Sitting static balance	2.59	± 1.00	4.86	± 1.18
Sitting dynamic balance	2.06	$\pm .79$	3.79	± 1.06
Standing static balance	2.04	$\pm .73$	3.78	$\pm .99$
Standing dynamic balance	1.71	$\pm .73$	3.17	± 1.04
Transfer bed to wheel chair	2.11	$\pm .71$	3.87	$\pm .98$
Gait	1.26	$\pm .51$	2.66	± 1.01

Table 3 revealed that rolling affected side to unaffected side was at 5% level of significant $p=0.05$ which was significantly associated with age of the stroke patients. In rolling unaffected side to affected side was at 5% level of significant $p=0.01$ which was significantly associated with age of the stroke patients. In sit to supine was at 5% level of significant $p=0.04$ which was significantly associated with age of the stroke patients. In gait was at 5% level of significant $p=0.00$ which was highly significant associated with age of the stroke patients.

Table 3: Distribution of the respondents by association between age and functional outcomes after 2 weeks Physiotherapy treatment

Functions	P- value
Rolling affected Side to Unaffected side	0.05
Rolling Unaffected side to affected Side	0.01
Sit to supine	0.04
Gait	0.00

DISCUSSION:

Age was one of important variable in this study. In this study, the minimum age of a participant was 32 year, maximum age was 79 year and mean age was 55 year. The maximum numbers of patients (30%) were in age group 60-69 year and minimum numbers were in age group 30-39 years (8%). In the previous study carried out that the mean age was 61.5 ± 14.4 .²¹ Other study was revealed in France, mean age was 53.3 with SD 13.7.¹³ In Brazil showed that mean age 53.2 with SD 7.52¹⁴ and mean age was 58 ± 6.4 in Sweden.¹⁵ In our study found that female participants were 51.40% and male participants were 48.60%. In Bangladesh, another study showed that male respondents were 74% and female were 25%.¹⁶ In Sweden, study showed that male was 76% and female was 24%¹⁵, in Netherland, male was 77.78% and female was 22.22%¹⁷, in Brazil male participants were 71.42% and female was 28.57%.¹⁸ In the previous study carried out that male & female ratio was 1.23: 1.²¹ Another study showed that the ratio of male: female patients was 3:44: 2:41.¹¹ In our study, (36.30%) were housewife followed by businessmen (25.70%), Unemployed were (20%), Service holder were (16.20%), and Day laborer were (1.90%). In Bangladesh, another study showed that, Service holder was 28%, businessman was 17%, housewife was 16%, retired was 21%, agriculture was 9%, others were 9%.¹⁶ In India, 2% were students, 34% were housewife, and 32% were farmer / laborer, 16.5% were retired, 15.5% were service holder/ businessmen.¹⁹ This study showed that that 53.30% participants were from urban area and 46.70% participants were from rural area. In Bangladesh, another study showed that 54% urban patient and 46% rural patient (16). In our study, educational level of the participants was showed maximum (30.50%) were below S.S.C level and minimum (8.60%) were no schooling. In India, Primary (standard I to X) were 66% and Higher

(standard XI and higher) were 34%.²⁰ This study found that among the participants 3.8% were received 1-5 sessions and 91.4% were received 6-10 sessions & 4.8 % were received 11-15 sessions. In UK, another study showed that among stroke patient received physiotherapy session on average 13.6 days.²² The average number of physiotherapy session was 1.5 per day and the average time was 38.1 minutes per session.²² This study revealed that initial mean score of rolling affected side to unaffected side on FIM scale was 2.21 ± 1.13 and after 2 weeks physiotherapy treatment the mean score was 4.01 ± 1.22 . Initial mean score of rolling unaffected side to affected side on FIM scale was 2.91 ± 1.30 and after 2 weeks physiotherapy treatment the mean score was 4.86 ± 1.21 . Initial mean score of bridging on FIM scale was $2.47 \pm .98$ and after 2 weeks the mean score was 4.53 ± 1.20 . Initial mean score of supine to sit on FIM scale was $2.17 \pm .89$ and after 2 weeks the mean score was 4.10 ± 1.16 . Initial mean score of sit to supine on FIM scale was $2.75 \pm .97$ and after 2 weeks the mean score was 4.89 ± 1.15 . Initial mean score of sitting static balance on FIM scale was 2.59 ± 1 and after 2 weeks the mean score 4.86 ± 1.18 . Initial mean score of sitting dynamic balance on FIM scale was $2.06 \pm .79$ and after 2 weeks the mean score was 3.79 ± 1.06 . Initial mean score of standing static balance on FIM scale was $2.04 \pm .73$ and after 2 weeks the mean score was $3.78 \pm .99$. Initial mean score of standing dynamic balance on FIM scale was $1.71 \pm .73$ and after 2 weeks the mean score was 3.17 ± 1.04 . Initial mean score of transfer from bed to chair on FIM scale was $2.11 \pm .71$ and after 2 weeks the mean score was $3.87 \pm .98$. Initial mean score of gait on FIM scale was $1.26 \pm .51$ and after 2 weeks the mean score was 2.66 ± 1.01 . After 2 weeks physiotherapy treatment the mean score was higher than initial mean scores of all functional outcome. This study revealed that there was significant association between age of the stroke patients & functional outcomes with rolling affected side to unaffected side, rolling unaffected side to affected side, sit to supine and gait ($P < 0.05$).

CONCLUSION:

This study was concluded as after 2 weeks physiotherapy treatment the mean score was higher than initial mean scores of all functional outcome which indicate that more independent functioning. This

study revealed that there was significant association among rolling affected side to unaffected side, rolling unaffected side to affected side, sit to supine and gait with the age of the stroke patients.

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