

Process of physiotherapy services of stroke patients treated at Ruhengeri Hospital in Rwanda: A four-year document review

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ABSTRACT

Background:

Physiotherapy plays a major role in the rehabilitation of patients with stroke. The process of physiotherapy management could influence the patient outcomes.

Aim:

This study aimed to describe the process of physiotherapy for patients with stroke treated at Ruhengeri Hospital in Rwanda, as documented in patients' folders.

Method:

A quantitative retrospective design was used to review the medical records of stroke patients admitted to Ruhengeri Hospital from January 1st, 2005 up to December 31st, 2008.

Results:

Two hundred and four patients with stroke were treated at Ruhengeri Hospital within the 4-year period, but only 139 patients (68%) were included in the analysis of the findings. The mean age of the study population was 56.3 years, and 53.2% were females compared to 46.8% males. Out of the 139 patients, only 55 (39.6%) received physiotherapy, and the majority (76.3%) started to receive physiotherapy within one week of their admission. The mean number of physiotherapy sessions for the patients was found to be four.

Conclusion:

Less than half of the patients with stroke admitted to Ruhengeri Hospital in Rwanda received physiotherapy. Of those who received physiotherapy the frequency is low. There is therefore a need for physiotherapists working at this hospital to review their management of patients with stroke in an attempt to provide an increased frequency of treatment to more patients.

Key Words:

Physiotherapy; Stroke patients; Ruhengeri Hospital; Rwanda.

INTRODUCTION

Physiotherapy plays a major role in the rehabilitation of patients with stroke (Wiles, Ashburn, Payne, & Murphy, 2004). The stroke-related disability has been shown to benefit from physiotherapy, and patients themselves tend to have high expectations of the extent of recovery they can achieve through physiotherapy (Wiles et

al., 2004). A study conducted in Belgium and Switzerland showed that physiotherapy accounted for 77% and 70% of the therapeutic activity time for stroke patients in those countries respectively (De Weerd et al., 2000). Many factors are known to influence the outcome of patients post stroke. One of these factors is the process of stroke care (Weir, Sandercock, Lewis, Signorini, & Warlow, 2001).

The frequency, duration and content of treatment sessions are factors that are described as part of the process of rehabilitation (Hoening, Horner, Duncan, Clipp, & Hamilton, 1999), which is part of a package of care. When investigating the process of physiotherapy the number, duration and content of treatment sessions could be determined.

Studies which investigated the process of physiotherapy were mainly conducted in developed countries. A study conducted by Beech, Ratcliffe, Tilling and Wolfe (1996) which analysed the use of physiotherapy, occupational therapy and speech therapy services showed that the percentage of those who received physiotherapy varied between 44% to 90%. Another study conducted in the United States by Jette et al. (2005) which investigated the physiotherapy provided to patients with stroke in inpatient rehabilitation facilities showed that the mean length of stay in the rehabilitation setting was 18.7 days (SD = 10.3, range = 1-75). Patients received physical therapy, on average, 13.6 days (SD = 7.8, range = 1-54) during an episode of care. The average number of physiotherapy sessions per day was 1.5 (SD = 0.3, range = 1-3), and the average time for each session was 38.1 minutes (SD = 17.1, range = 5-360).

There is a lack of resources available for the rehabilitation of patients with stroke in sub-Saharan African countries (Kengne & Anderson, 2006). As a result of this studies conducted in these countries reported a lower frequency and intensity of physiotherapy provided to patients with stroke when compared to results from studies conducted in developed countries. A study done in Abidjan in Ivory Cost showed that the mean frequency of stroke rehabilitation was three times a week, which is the average of one session per two days (Datié, Nandjui, Manou, Alloh, & Boni, 2006). Rhoda, Mpofu and DeWeerd (2009) reported that the majority of patients with stroke receiving rehabilitation at Community Health Centres in the Western Cape, South Africa, received a total of between 1-5 treatment sessions with the median number of total therapy time being between 1.83 (0.83-3.9) hours.

There is however a lack of information regarding the physiotherapy services provided to stroke patients in other African countries. The authors therefore undertook a study to describe the process

of physiotherapy provided to stroke patients at Ruhengeri Hospital in Rwanda. The aim of the study was to determine the percentage of hospitalized stroke patients who received physiotherapy; the time of commencement of physiotherapy since admission; the duration of physiotherapy; and the total number of physiotherapy sessions received by each patient. This information is important as it could assist in the advocacy for services that are effective and appropriate.

METHOD

Setting

The study was conducted at the Ruhengeri Hospital, a district hospital, located in Musanze District, in the Northern Province of Rwanda. The Musanze District is an area which is mainly rural, and where at least 91% of the population is engaged in agriculture (Musanze District, 2009). This district is the most mountainous district in Rwanda (Karabayinga, 2009). The Ruhengeri Hospital has a capacity of 409 beds serving about 400,000 people who reside mainly in the Musanze District. The Physiotherapy department at the Ruhengeri Hospital manages about 40 outpatients per day in addition to hospitalized patients from surgery, maternity, intensive care, internal medicine, and pediatrics departments.

Design

A quantitative retrospective approach was used to collect information regarding the process of physiotherapy for patients with stroke treated at Ruhengeri Hospital.

Sample

Medical records of stroke patients admitted to Ruhengeri Hospital between January 1st, 2005 and December 31st, 2008 were reviewed to collect information related to demographic characteristics and the process of physiotherapy.

Instrument

The data gathering instrument was developed by the researchers to capture the data. The instrument was based on the study objectives, the literature (Kaplan, 2005; Pollack & Disler, 2002; Stuijbergen, 1995; Vestling, Tufvesson, & Iwarsson, 2003), and the researchers' experiences. After the draft of the data gathering instrument was compiled, it was

subjected to peer review, by colleagues knowledgeable in the field of stroke rehabilitation, to test content validity (Domoholdt, 2000). The recommended corrections and additions made by the experts were made to the data gathering instrument. In demographic data section, the suggestion was to use the code "99" (Banks, 1998) in cases where the desired data was "missing" from the records, rather than leaving the response fields blank. A question "has the patient received physiotherapy after admission" was included in the instrument. Then if the answer was "Yes", the following items regarding the time of commencement of physiotherapy since admission, the duration of physiotherapy and the total number of physiotherapy sessions were recorded. If the answer was "No", the following items were skipped and filled in by the data abstractor with the code "88" for "Not applicable" (Banks, 1998).

The final data gathering instrument comprised the following items: participant's demographic characteristics, stroke onset-admission interval, whether the participant received or did not receive physiotherapy, time of commencement of physiotherapy since admission, duration of physiotherapy and total number of physiotherapy sessions.

To test the inter-rater reliability of the data gathering instrument, 15 patients' records were reviewed by the researcher. The same 15 records were reviewed by a research assistant separately. Cohen's kappa (k) measure was then used to determine the inter-rater reliability coefficient. The inter-rater reliability coefficient was found to be excellent (0.90) (Law, 2002).

Procedure

The study commenced after permission was obtained from the necessary authorities. Medical records containing the diagnosis of stroke confirmed by a medical doctor were sorted from the central records department at the Ruhengeri Hospital. Consequently, information relating to the participants' demographic characteristics and the process of physiotherapy data required was extracted from the records.

The stroke onset-admission interval was calculated as the difference between the date of stroke onset

and the date of admission. It was noted the patient had received physiotherapy if there was evidence of a recording of physiotherapy treatment received as recorded by a physiotherapist in the patient's folder. The time of commencement of physiotherapy after admission was calculated as the difference between the date of the first physiotherapy session and the date of admission. The duration of physiotherapy was calculated as the difference between the dates of the first and the last physiotherapy sessions. The total number of physiotherapy sessions per individual was determined by counting all the physiotherapy sessions received during the length of hospital stay as recorded in the patient's folder.

Ethical Considerations

Permission to conduct this study was obtained from the National Ethics Committee of Rwanda, the Mayor of Musanze District, and the Director of Ruhengeri Hospital. Permission was also provided by the Senate Research Grants and Study Leave Committee at the University of the Western Cape.

RESULTS

A total of 204 stroke patients were admitted and managed at Ruhengeri Hospital between January 1st, 2005 and December 31st, 2008. The final study sample however, only consisted of 139 participants (68%) as 65 patients were excluded due to the stroke being associated with other hypotheses like seizures, encephalitis, hepatic encephalopathy, cardiac failure or brain tumor, or due to missing and incomplete data. The items that were investigated and will be presented include the demographic characteristics of the stroke patients, the stroke onset-admission interval, the percentage of the patients who received physiotherapy, time of commencement of physiotherapy since admission, duration of physiotherapy and total number of physiotherapy sessions.

Demographic characteristics of the stroke patients

The demographic data captured which are illustrated in Table 1 were age, gender, marital status and occupation distribution among the stroke patients.

Table 1: Age group, gender, marital status and occupation of the stroke patients (n = 139)

Variable	Characteristics	Frequency	%
Age group	15-24	5	3.6
	25-34	11	7.9
	35-44	21	15.1
	45-54	27	19.4
	55-64	25	18.0
	65-74	27	19.4
	75 ≥	23	16.5
Gender	Females	74	53.2
	Males	65	46.8
Marital Status	Single	8	5.8
	Married	73	52.5
	Living Together	8	5.8
	Separated	3	2.2
	Divorced	1	0.7
	Widowed	46	33.1
Occupation	Cultivator	87	62.6
	Commerce	10	7.2
	Driver	5	3.6
	Teacher	5	3.6
	Student	5	3.6
	Other occupation	15	10.8
	No occupation	12	8.6

The majority (53.2%) of the stroke patients were females. The mean age of the sample was 56.3 years (SD = 17.265) with ages ranging between 17 and 92 years. The majority (64%) of the patients were 64 years old or younger. It was also noticed that 26.6% of all the subjects were younger than 45 years. Only 36% of the patients were at pensionable age: 65 years and above. More than half of the patients (52.5%) were married while 46 (33.1%) were widowed. The majority of the patients (62.6%) were cultivators at the time they suffered the stroke while 12 (8.6%) had no occupation as an income generating activity. Included in category "other occupation" were 3 carpenters, and the remaining 12 were accountant, artist, cleaner, manager, nurse, painter, pastor, policeman, school director, secretary, soldier and tailor.

Stroke onset-admission interval

The stroke patients were admitted to the hospital between the same day of stroke onset and one hundred eighty days after stroke onset (mean = 6.8 days after stroke onset, SD = 18.348). Approximately forty-five percent of the patients were admitted two days or more after getting stroke. Figure 1 presents the time between stroke onset and admission

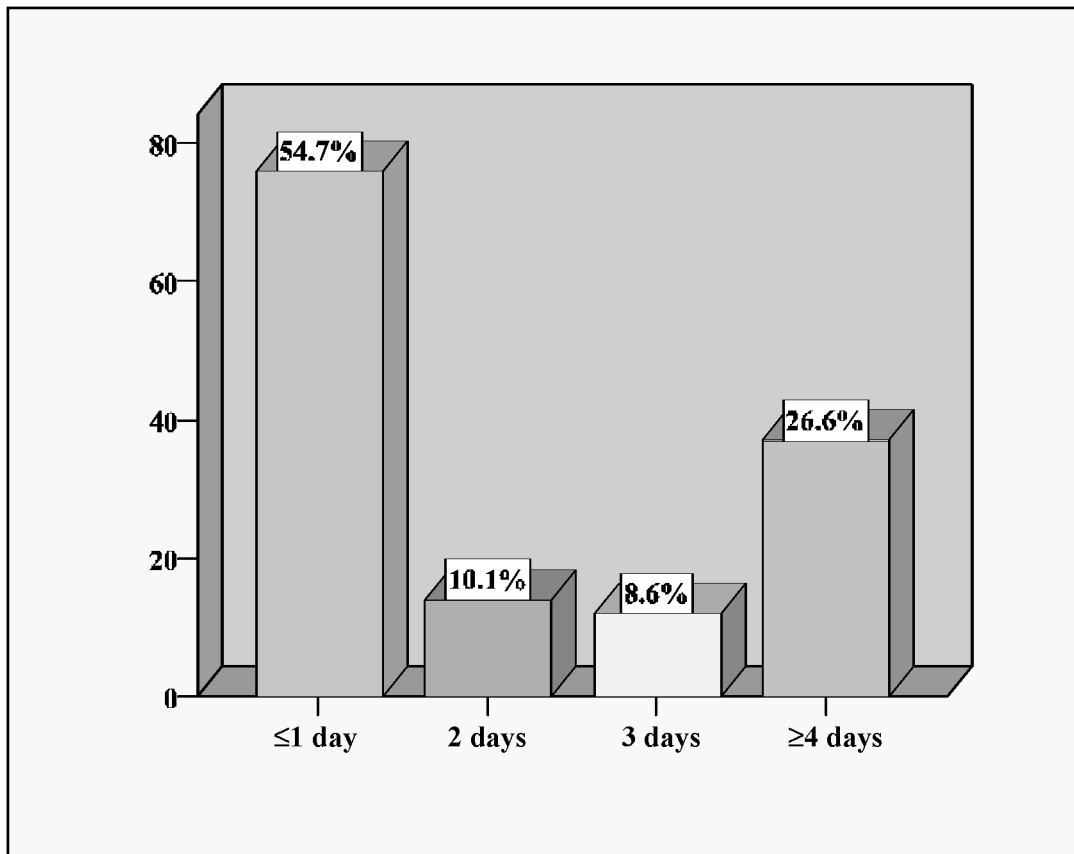


Figure 1: Percentages of stroke patients according to stroke onset-admission interval (n = 139)

Percentage of stroke patients who received physiotherapy

Figure 2 presents the percentage of stroke patients who received physiotherapy during their hospital stay.

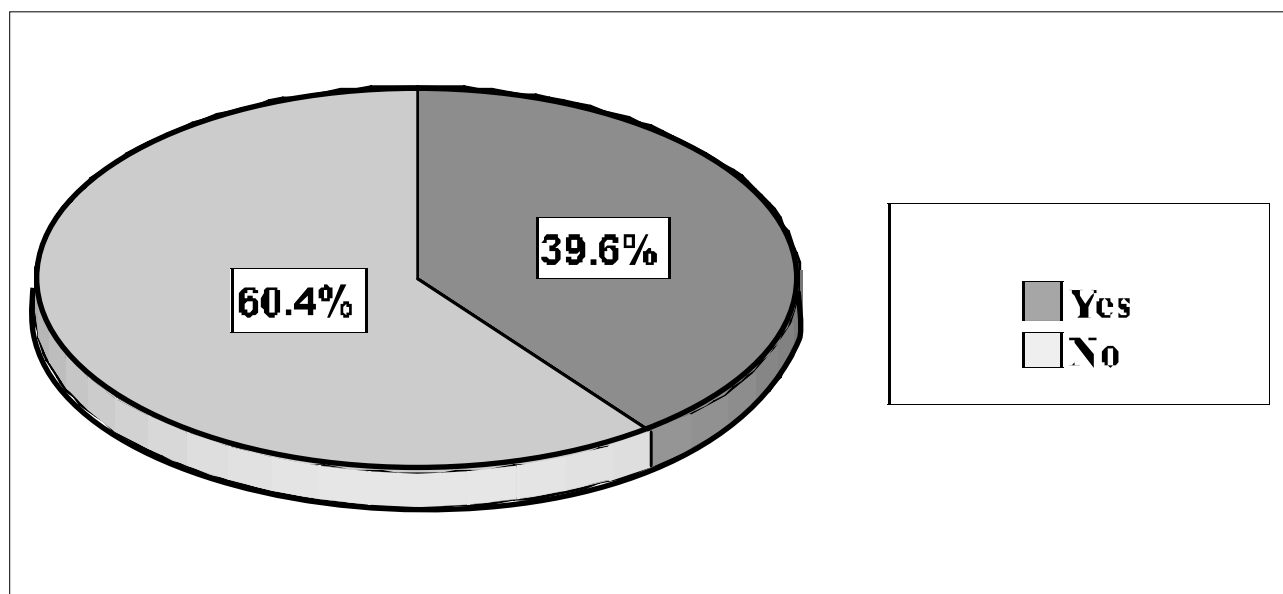


Figure 2: Percentage of stroke patients who received physiotherapy (n = 139)

Out of 139 stroke patients, only 55 (39.6%) received physiotherapy. Therefore, only those 55 were considered in data analysis related to physiotherapy with regard to time of commencement of physiotherapy since admission, duration of physiotherapy and total number of physiotherapy sessions (n = 55).

Time of commencement of physiotherapy since admission (n = 55)

Table 2 illustrates the interval between the date of admission and the date of commencement of physiotherapy

Table 2: Interval between the date of admission and the date of commencement of physiotherapy (n = 55)

Time (in days)	Frequency	%
0 - 3	18	32.7
4 - 7	24	43.6
8 - 11	6	10.9
≥12	7	12.7
Total	55	100.0

Among the stroke patients who had physiotherapy, the majority (76.3%) started to receive the physiotherapy within one week of their admission.

Duration of physiotherapy (n = 55)

Table 3 presents the period between the first and the last treatment session.

Table 3: Duration of physiotherapy among the stroke patients (n = 55)

Duration (in days)	Frequency	%
≤ 4	27	49.0
5 - 9	14	25.5
≥10	14	25.5
Total	55	100

The stroke patients received physiotherapy within the period of between one and ninety days, with a mean of 7.6 days (SD = 12.273 days). Out of the fifty-five patients, only twenty-eight (51%) had physiotherapy for more than four days.

Total number of physiotherapy sessions (n = 55)

Table 4 illustrates the number of physiotherapy sessions the stroke patients received.

Table 4: Number of physiotherapy sessions (n = 55)

Number of physiotherapy sessions	Frequency	%
1 - 2	25	45.5
3 - 4	18	32.7
5 - 6	5	9.1
≥7	7	12.7
Total	55	100

The total number of physiotherapy sessions for a stroke patient varied between one and twenty-four, with a mean of 3.7 sessions (SD = 3.827). The majority of the stroke patients (78.2%) had less than five physiotherapy sessions.

DISCUSSION

The results revealed that only 39.6% of the stroke patients received physiotherapy during their hospital stay. This percentage is lower than what was found (44% to 90%) in a similar study conducted by Beech et al. (1996) who investigated the percentage of stroke patients admitted to 22 hospitals in seven European states who received physiotherapy. The proportion found in the present study is very low considering the literature which states that stroke results in a range of disabilities which have been shown to benefit from physiotherapy (Wiles et al., 2004). In developed countries such as Belgium and Switzerland, physiotherapy comprises an important and a relatively large component of the rehabilitation of stroke clients (Jette et al., 2005).

In a study conducted by Pound, Bury, Gompertz and Ebrahim (1994) which explored the views of survivors of stroke about benefits of physiotherapy, physiotherapy was appreciated for the following reasons. Firstly, it was believed to bring about functional improvement. Secondly, in the context of stroke the exercise component was valued because it was perceived to "keep you moving, keep you going, and keep you busy." Exercise programmes at home were also valued for the

structure they gave to each day. Thirdly, physiotherapists were a source of advice and information, and fourthly, they were a source of faith and hope (Pound et al., 1994). Those who did not receive physiotherapy are more prone to need more assistance in activities of daily living (ADLs), develop further complications such as joint or muscular problems, and they would miss advice and information provided by the physiotherapists. The study findings predict a higher prevalence of long-term post-stroke disability even in those with acute mild to moderate disability as the majority of the participants (60.4%) do not have a chance to benefit from physiotherapy (Physiotherapy Association of British Columbia, 2007).

The majority (76.3%) of those who had physiotherapy started to receive the physiotherapy within one week of their admission. The stroke patients are also admitted within one week post stroke onset. Studies have indicated that the sooner rehabilitation is started post-stroke the better the functional outcomes will be (Rosenberg & Popelka, 2000; Jacob, 2009). A controlled trial conducted by Musicco, Emberti, Nappi and Caltagirone (2003) which recruited 1716 stroke patients found that patients who initiated the rehabilitation early (within seven days after stroke) had better long-term outcomes than those who initiated the rehabilitation after more than one month or from 15 to 30 days after the acute stroke event. This seems to be related to the fact that in the acute phase the brain is primed for recovery creating an ideal opportunity for therapeutic input (Teasall, Bitensky, Salter, Nestor, & Bayon, 2005). The mean duration of physiotherapy was 7.6 days. Such a short duration of physiotherapy during the hospital stay should be supplemented by a long-term follow-up post-discharge as physiotherapy continues to show positive results even beyond six months post stroke (Kwakkel, Kollen, & Lindeman, 2004).

While the duration of physiotherapy was 7.6 days, the average number of physiotherapy sessions for the stroke patients was found to be four (4 sessions for 7.6 days), which is the frequency of one session for two days. The result was similar to three sessions per week found in Ivory Coast by Datié et al. (2006).

The result was however very low when compared to the average number of three sessions per two days found in the United States (Jette et al., 2005).

The European Stroke Initiative recommended at least three to four physiotherapy sessions per day for better outcome (Hacke, Kaste, Skyhoj, Orgogozo, & Bogousslavsky, 2000). The frequency at which the study population is treated by the physiotherapists could result in poor outcome as greater frequency of physiotherapy results in better functional outcomes (Teasall & Kalra, 2005). Results of a meta-analysis conducted by Kwakkel et al. (2004), showed that when intensive exercise therapy is provided to stroke patients at least 16 hours more than what is provided on average within the first 6 months, a small but favourable effect on ADLs and walking speed would result. The meta-analysis also showed improvements in instrumental activities of daily living although only supported by 9 out of 31 studies (Kwakkel et al., 2004).

CONCLUSION

The results of the study revealed that the provision of physiotherapy services for the current study population is lower than suggested by the literature. The implication of these results is that there is a need for efforts in designing early and intensive physiotherapy interventions for stroke patients treated at Ruhengeri Hospital which could result in improved patient outcomes.

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