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Impact of Early and Intensive Rehabilitation in Preventing the Functional Decline of Stroke Patient

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Introdution

Stroke is one of the major causes of dead and disability due to neurological disease and restricts the person's functionality particularly to their independence for ADLs (Portugal, 2014).

10% of survivors of stroke recover almost entirely; 25% recover with minimal sequelae; 40% present moderate to severe disability, requiring specific follow-up; 10% require long-term treatment in a specialized unit; 15% die shortly after stroke and 14% of survivors have a second episode during the first year (NSA, 2013).

Introdution

Despite the development of new therapeutic strategies and intervention in the acute phase of the accident in recent years, rehabilitation is identified as an essential component for early recovery of deficits and preparation for reintegration into community life (Winstein et al. 2016).

Introdution

Certain aspects of stroke rehabilitation care are well established in clinical practice and constitute a standard of care. However, there are some gaps in the evidence that needs to be clarified (Winstein et al., 2016), namely regarding the onset and frequency / intensity of rehabilitation programs.

Introdution

Some studies report some benefits of earlier and more intensive rehabilitation programs, such as return to unassisted orthostatic position and improvement of functional recovery of stroke patients after 3 months (Cumming et al., 2011), improvement of short-term functional outcomes and long-term (Bernhardt et al., 2016; Kinoshita et al., 2017), reduced risk of hospital readmission in 30 days and 90 days (Andrews, Li & Freburger, 2015) and motor function improvement of the upper limb after stroke (Han et al., 2013).

Introdution

Other authors present studies with some results of extra rehabilitation programs, namely in the independence in the sit-down (Barreca et al., 2004; Casey et al., 2011), in reducing the duration of hospitalization (Peiris, Taylor & Shields, 2011; Scrivener et al., 2015), decreased functional limitations of the upper limb (Schneider et al., 2016), and overall functional outcomes (Parker, Lord & Needham, 2013).

GENERAL OBJECTIVE

To assess the impact of an early and extra nursing rehabilitation program on preventing functional decline in hospitalized stroke patients.

SPECIFIC OBJECTIVES

- To compare the health gains of a daily nursing rehabilitation program (standard) with those of a twice-daily program in stroke patients' functional status;
- To establish associations between stroke patients' functional status and sociodemographic and clinical variables (age, gender, length of hospital stay)

METHODS

Study type

A quasi-experimental study

Hypotheses

H1 - There is a difference in the functional status of the patient with stroke in the period between pre admission, admission and discharge.

H2 - There is greater benefit of the functional status of the patient with stroke on discharge fulfilling extra Rehabilitation program (EG) than in a daily rehabilitation program (CG).

H3 - There are associations between the functional status of the patient with stroke in the high performing extra rehabilitation program and the variables age, gender and days of hospitalization.

METHODS

Sample

Non-probability consecutive sample of 40 stroke patients in acute phase (EG: 20; CG: 20) who were hospitalized at the neurological unit of a University Hospital.

Inclusion criteria

- Inpatients with clinical diagnosis of ischemic stroke
- Grade 3/grade 4 hemiparesis documented in clinical record
- Oriented
- Motivated to achieve functional/motor recovery
- Tolerate the rehabilitation program.

METHODS

Rehabilitation protocol

The EG and CG were subject to the same rehabilitation nursing intervention plan varying only the frequency of the plan (EG: 2x day; CG: 1xday).

The rehabilitation program (daily and extra) started within 24 hours after admission of the patient in the service, occurring daily even at the weekend (7 days per week), during the morning shift (8:00 am to 4:00 pm), performed by the rehabilitation nurses of the service who were scheduled to perform rehabilitation care during their working hours. Each session lasted 30 to 45 minutes.

METHODS

Rehabilitation protocol

Implementation of several procedures and therapeutic exercises, such as: changes in mobility (muscle strength, muscle tone, sensitivity, postural control) – rehabilitation exercises in bed, antispastic pattern positioning, muscle and joint exercises, stretching exercises, lifting and transferring techniques, gait training; sitting and standing balance changes (static and dynamic); fine motor skills; facial paresis – mime therapy, visual changes, communication, dysphagia – positioning technique, tongue and soft palate exercises; compensatory manoeuvres; bowel training, bladder training, strength training; activities of daily living (ADLs) training.

METHODS

Data collection instrument

The International Resident Assessment Instrument – Acute Care (InterRAI-AC-PT), validated for the Portuguese population (Amaral et al., 2014).

It was applied in 3 different moments (Pre-Admission, Admission, and Discharge), between September 2016 and March 2017, and after permission from the authors and the hospital's Ethics Committee. Patients voluntarily participated in the study and signed an informed consent form.

RESULTS

Distribuition of patients in function of gender

Gender		Group		Total
		CG	EG	
Male	N	7	12	19
	%	35,0	60,0	47,5
Female	N	13	8	21
	%	65,0	40,0	52,5
Total	N	20	20	40
	%	100,0	100,0	100,0

Distribution of patients according to marital status

Marital status		Group		Total
		CG	EG	
Not married	N	0	2	2
	%	0,0	10,0	5,0
Married	N	10	9	19
	%	50,0	45,0	47,5
Widower	N	10	9	19
	%	50,0	45,0	47,5
Total	N	20	20	40
	%	100,0	100,0	100,0

RESULTS

Distribution of patients a function of provenance

Provenance		Group		Total
		CG	EG	
House/flat/ rented room	N	9	15	24
	%	45,0	75,0	60,0
Nursing home	N	1	0	1
	%	5,0	0,0	2,5
Acute hospital	N	1	1	2
	%	5,0	5,0	5,0
Other	N	9	4	13
	%	45,0	20,0	32,5
Total	N	20	20	40
	%	100,0	100,0	100,0

Length of hospital stay

Days of hospitalization	Group	
	CG	EG
Average	14,95	10,50
Maximum	29,00	15,00
Minimum	7,00	6,00
SD	7,48	2,61

RESULTS

Friedman's test for paired samples relative to the ADLSV Scale in pre admission, admission and discharge

Categories	Category avarage	N	Chi-Square	p
ADLSV Scale in pre admition	1,20			
ADLSV Scale in admition	3,00	20	37,333	0,000
ADLSV Scale in discharge	1,80			

p <0,05

RESULTS

Friedman's test for paired samples relative to the ADLH Scale in pre admission, admission and discharge

Categories	Category avarage	N	Chi-Square	p
ADLH Scale pre admission	1,20			
ADLH Scale in admission	2,98	20	36,535	0,000
ADLH in discharge	1,83			

p <0,05

RESULTS

Wilcoxon test in relation to the IADLs Scale in pre admission and discharge

IADLs Scale	Average	SD	Min	Max	Z	p
Pre admission	17,15	15,567	0	42	-0,356	0,722
Discharge	18,20	12,907	0	44		

p <0,05

RESULTS

Mann-Whitney test in discharge between CG/EG and ADLSV, ADLH IADL Scales

Categories	Group	N	Average	Z	p
IADL Scale	CG	20	24,45	-2,141	**0,032**
	EG	20	16,55		
	Total	40			
ADLSV Scale	CG	20	22,95	-1,406	0,160
	EG	20	18,05		
	Total	40			
ADLH Scale	CG	20	23,05	-1,476	0,140
	EG	20	17,95		
	Total	40			

P<0,05

Student's t-test for indep. samples in discharge between GC /GE and the IADL Scale

Categories	Group	N	Average	SD	p
IADL Scale	CG	20	18,20	12,907	0,020
	EG	20	10,10	7,144	

p<0.05

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RESULTS

Spearman's correlation test for age, gender, and length of hospital stay with ADLsSV, ADLsH and IADL Scales

Estatstics		ADLSV Scale	ADLH Scale	IADL Scale
Age	rs	**0,454**	**0,439**	**0,464**
	p	**0,044**	**0,053**	**0,039**
	N	20	20	20
Length of hospital stay	rs	-0,120	-0,112	-0,049
	p	0,613	0,637	0,837
	N	20	20	20
Gender	rs	0,160	0,218	0,301
	p	0,501	0,355	0,198
	N	20	20	20

$p < 0,05$

CONCLUSIONS

Confirmed the existence of benefits for stroke patients' functional status at discharge as a result of a extra nursing rehabilitation program, with increased autonomy in the performance of IADL. It also concluded that the older the patients, the greater their dependence on the performance of IADL at discharge.

These results may contribute to the development of best practices and the production and translation of new knowledge aimed at the development of the Nursing discipline.

CONCLUSIONS

These results have to be communicated to and discussed by the health professionals working at the analyzed services, namely regarding the need for rehabilitation programs to be more intense and early implemented.

The dissemination of these findings in scientific meetings and journals will allow increasing nurses' knowledge about this health problem.

Future high-quality RCTs should be developed to analyze the differences in treatment between control and experimental groups.

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