ORIGINAL ARTICLE

Effectiveness of Home Care Nursing Program (HCNP) on The Activities of Daily Living of Stroke patients

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ABSTRAK

Program Jagarawatan Di Rumah (HCNP) di HUKM dimulakan dalam tahun 1998 dan penilaian program ini diperlukan. Tujuannya ialah untuk menilai keberkesanan Program Jagarawatan Di Rumah ke atas rehabilitasi strok di HUKM. Satu kajian retrospektif telah dijalankan. Satu rekabentuk padanan pasangan (matched pair) ke atas 69 orang pesakit strok yang dimasukkan ke HUKM dari bulan Ogos 1998 hingga Disember 2000 disediakan. Peserta kajian terdiri dari kumpulan HCNP (n=35), dan *Non-HCNP* (n=34). Padanan dibuat berdasarkan lima kriteria; umur, jantina, bangsa, tarikh kemasukan, dan keterukan ketidakupayaan pesakit. Kumpulan HCNP telah dikenalpasti melalui data yang diperolehi dari unit HCNP dan rekod perubatan mereka dikesan. Bagi kumpulan *Non-HCNP* pula, peserta dikenalpasti berdasarkan kriteria yang sama dengan kumpulan HCNP. Pada kriteria yang dikenalpasti, tidak terdapat perbezaan yang signifikan antara kedua-dua kumpulan. Aktiviti kehidupan harian (ADL) diukur menggunakan 'Modified Barthel Index' sebanyak dua kali; semasa kemasukan (berasaskan rekod) dan selepas strok. Uijan-t digunakan untuk data parametrik dan khi-kuasa dua bagi data non-parametrik untuk mengesan hubungan signifikan skor antara dua kumpulan. Hasil kajian menunjukkan tidak terdapat perbezaan signifikan (p=0.1990) dalam aktiviti kehidupan harian (ADL) semasa kemasukan dan pos strok ADL antara kedua kumpulan. Walaubagaimana pun, terdapat perbezaan signifikan (HCNP p=0.000 dan Non-HCNP, p=0.000) dalam ADL semasa kemasukan dan pos strok bagi pesakit yang mendapatkan rawatan alternatif jika dibandingkan dengan pesakit yang tidak mendapat rawatan alternatif.

Kata kunci: strok, jagarawatan di rumah, aktiviti harian

ABSTRACT

Home Care Nursing Program (HCNP) at HUKM was started in 1998 and evaluation of the program was required. The objective of this study is to evaluate the effectiveness of HCNP on stroke rehabilitation at HUKM. A retrospective study using a matched pair design involving 69 stroke patients admitted to HUKM from August 1998 to December 2000 was carried out. The participants of this study were the HCNP group (n=35), and Non- HCNP (n=34). The matching was based on five criteria; age, sex,

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race, data of admission and severity of disability. The HCNP group was identified through data at the HCNP unit and their medical reports were traced. For the Non-HCNP group, the participants were identified based on criteria which were similar to that of the HCNP group. Based on the criteria identified, there was no significant difference between the two groups. The Activities of Daily Living was measured using the Modified Barthel Index twice; once on admission (based on record) and one post stroke. The t-test was applied to parametric data and non-parametric data; Chi-square was used to detect any significant relationships between the scores of the two groups. Results showed no significant difference (p=0.1990) in ADL on admission and ADL post stroke patients between the two groups. However, there were significant difference (HCNP p=0.000 and Non-HCNP p=0.000) in ADL on admission and post stroke for stroke patients who sought alternative treatment compared to those who had not.

Key Words: Stroke, Home Care Nursing, Activities of Daily Living.

INTRODUCTION

Home care Nursing Program at HUKM was started in 1998. Since its inception, the patients and type of cases managed were those related to medical and surgical problems. They included amongst others; wound breakdown, stoma care, removal of stitches, diabetic ulcer, bronchial asthma and post CABG patients. The most common cases referred to the HCNP were Cerebral Vascular Accident (CVA) or diseases affecting the nervous system. In fact, at the beginning of the program 99% of the cases referred to HCNP were CVA cases. This could be due to awareness of the neurologist about the existence of the HCNP at HUKM. For this reason the researcher had chosen CVA patients as participants of this study and to measure effectiveness of the HCNP. The objectives of this study are: i) to determine the extent of disability of stroke patients who were referred to HCNP at HUKM. ii) to determine the relationship between services required from the HCNP and the extent of disabilities of stroke patients. iii) to compare the stroke patients who had been referred to the HCNP to those who had not with regards the ability to perform the daily living activities.

The purpose of home care nursing program was to provide service to post hospitalized patients at home. As a result of this program the patient could be sent home earlier (Alliance for academic Home Care 2001). The function of home care nurses was to teach the patient and care giver at home (Green 1998). The effectiveness of home care nursing had been proven on all types of cases. Patients with chronic obstructive pulmonary disease improved in cycle workload dyspnea scores significantly better in home care rehabilitation program compared to hospital-based rehabilitation program (Strijbos, Postma, van Altena, Gimeno & Koeter 1999). Randomised Controlled Trial of rehabilitation at home after stroke in Southwest Stockholm by Holmqvist et al (1998) involving home and routine rehabilitation showed positive effects of the home rehabilitation group in social activity, activities of daily living (ADL), motor capacity, manual dexterity and walking. In another study conducted by Mayo et al (2000), there was significant beneficial impact of home intervention on ADL and reintegration to normal life. Duncan et al (1998) suggested that any structured exercise program should be planned for post stroke patients to ensure effectiveness of their rehabilitation. This was because results of their study showed that the experimental group tended to improve more than the control group in motor

function, and upper extremities, though there was no significant difference in the scores of hand function.

METHODOLOGY

A retrospective matched-paired design was used to evaluate the effectiveness of the HCNP on activities of daily living of post stroke patients. The objectives of this study are; i) to determine the number of stroke cases and the extent of disability using Modified Barthel Index (Shah at al 1989) who were referred to the HCNP at HUKM, ii) to compare the stroke patients who had been referred to HCNP and those who have not with regards their ability to perform the activities of daily living. The study was conducted at HUKM, one of the teaching hospitals in Malaysia. The hospital is run by Clinical Specialists who are academic staffs of the Faculty of Medicine, UKM. The hospital functions as a referral centre in the country. As such, HUKM is both a teaching hospital and a tertiary referral centre for therapy and second opinion. The HCNP was started at HUKM for the purpose of fulfilling its social responsibility as well as to relieve the congestion in the hospital. The management of HUKM believe that involvement of members of the community in taking care of their family members would help in the recovery process of patients. The study sample included all stroke patients who were admitted during 1998-2000 and consisted of two groups; the HCNP (n=43), and Non-HCNP group (n=73). Stroke patients who were not referred to HCNP and lived outside the coverage areas, plus patient who had a history of mental problems were excluded. The Modified Barthel Index when tested by many authors, showed internal consistency coefficients of 0.87 to 0.92 (Shah et al. 1989), 0.99 (Kucukdeveci et al. 2000) and 0.90 to 0.93 (Nazzalm et al. 2001).

The data collection process went through a few stages, firstly the research scrutinised the list of stroke patients who had been admitted from August 1998 to December 2000. The patients listed in the data were categorised under the Inter-national Code of Disease (ICD) 9 code 436 (those patients admitted from January 1998 to May 1999) and ICD 10 code 164 (those patients admitted from June 1999 to December 2000). With the help of ward staffs the researcher managed to trace important information about patients such as permanent address, registration number, name, age, contact number etc. The Health Assistant from the HCNP unit who was not involved in giving care to the stroke patients was given the task of contacting the participants via phone. If the participant was reluctant to participate, their name was excluded. All the participants contacted volunteered to participate. Next, the process of obtaining the participant's particulars before entry into the questionnaire forms was done. The researcher obtained demographic data of patients, and a Consultant scored the ADL during admission based on the physical assessment during admission obtained from their medical records. The process of filling up the questionnaires was done at the record office. Finally, the participants are interviewed by the researcher with the help of a Research Assistant. Each interview took 20 to 30 minutes for every participant.

RESULT

Out of 43 stroke patients in the HCNP group, only 35 (81.3%) were included in this study, because six (13.5%) had died and two (4.6%) were transferred to another locality and could not be traced. Six patients who died were very ill. In the Non-HCNP group, of the 74, only 34 were comparable with the HCNP group and were included in the study. The total number of the stroke patients admitted to HUKM during the period of study for both groups were inaccurate as records were

incomplete.

DISCUSSION

The respondents in this study were stroke patients and there was no significant difference in terms of age (t=3.057, p=0.85), race (Cramer's V=0.267, *p*=0.178), sex (x^2=0.013, *p*=0.911), time of admission (Cramer's V=0.295, p=0.647), and medical problems (Cramer's V=0.220, *p*=0.188). The activities of daily living on admission was statistically not significant. The level of dependency was classified into five categories; i) totally dependent on care giver with maximum help needed by the post stroke patients was 27 hours per week. There were 28 (80%) out of 35 from the HCNP group who fell into this category. In the Non-HCNP group 22 (64.7%) out of 34 participants showed total dependence on the caregiver. Even though it was statistically not significant, the percentage of the HCNP group was higher (80% vs 64.7%). The main reason why the Non-HCNP group did not refer to the HCNP unit for post hospitalised care was because they were living outside the coverage areas within 15 kilometers radius to HUKM. ii) The second category was greatly dependent on the caregiver when their ADL scores was 25-49 involving six (17.%) respondents from the HCNP group, and 10 (29.4%) from the Non HCNP group. The level of dependency required 23 hours of help per week (maximum) from the caregivers. iii) The third category was 'moderately' dependent on caregiver. Only one (2.8%) in the HCNP group and two (5.9%) of the Non-HCNP group were in this study and they needed a maximum 20 hours of help per week. Only the above three categories participated in the study, whereas the other two categories (mildly & minimally) were not referred to the HCNP.

The assessment results of ADL of post stroke patients showed that out of 28 (80%) patients, nine (25%) of the stroke patients were still totally dependent on caregivers (ADL score 0 - 24), three (8.6%) show slight improvement from being totally dependent to severely dependent (ADL score 25 - 49). Three (8.6%) were moderately dependent on caregivers (ADL score 50 - 74), seven were mildly dependent and six (17.1%) improved and were minimally dependent on the caregiver

Table 1: Number of stroke patients according to time of admission.

Three Monthly admissions	HCNP		Non-HCNP	
	n	%	n	%
August – October 1998	6	(17.1%)	4	(11.8%)
Nov '98 - Jan '99	2	(5.7%)	1	(2.9%)
Feb – April 1999	3	(8.6%)	4	(11.8%)
May – July 1999	1	(2.8%)	3	(8.8%)
Aug – Oct 1999	4	(11.4%)	4	(11.7%)
Nov '99 – Jan '00	5	(14.3%)	6	(17.6%)
Feb – April 2000	5	(14.3%)	1	(2.9%)
May – July 2000	5	(14.3%)	6	(17.6%)
Aug – Oct 2000	4	(11.4%)	5	(14.7%)

Cramer's V 0.295, p=0.647 (no significant difference between two group).

Table 2: Total number of stroke patients according to age.

Age Range (years)	HCNP		Non-HCNP	
	n	%	n	%
41 – 50	4	(11%)	-	-
51 – 60	7	(20%)	7	(20.6%)
61 – 70	10	(28.6%)	17	(50%)
71 – 80	11	(31.4%)	8	(23.5%)
81 – 90	3	(8.6%)	2	(5.9%)

The mean age of the HCNP group was ± 65.71 and the Non-HCNP was ± 67.28.
There was no significant difference (t=3.057, p=0.85)

Table 3: Profile of Stroke Patients.

Particulars of patient	HCNP		Non-HCNP		P values
	n	%	n	%	
Sex					
Male	19	(54.3%)	18	(52.9%)	x^2 = 0.013,
Female	16	(45.7%)	16	(47.1%)	p = 0.911
Race					
Malay	19	(54.3%)	19	(55.9%)	Cramer's
Chinese	16	(45.7%)	11	(32.4%)	V = 0.267
Indian	-	-	3	(8.8%)	p = 0.178
Others	-	-	1	(2.9%)	
Medical problem					
Right CVA	20	(57.1%)	19	(55.9%)	Cramer's
Left CVA	13	(34.93%)	15	(44.1%)	V = 0.220
Multiple Current Infarcts	3	(8.6%)	-	-	p = 0.188

Table 4: The Activities of Daily Living Score using Modified Barthel Index.

Level of Dependency (ADL) On Admission (MBI)	HCNP		Non-HCNP		Hours of help required /week
	n	%	n	%	
ADL Score					
0 – 24 (totally dependent)	28	(80%)	22	(64.7%)	27
25 – 49(severely dependent)	6	(17.1%)	10	(29.4%)	23.5
50 – 74 (moderately dependent)	1	(2.8%)	2	(5.9%)	20
75 – 90 (mild dependent)	-	-	-	-	13
91 – 99 (minimally dependent)	-	-	-	-	<10

There was no significant difference t=1.379, p=0.173 between two groups in terms of level of dependency scores.

Table 5: Level of Dependency of stroke patients on admission and post stroke using Modified Barthel Index (MBI)

Level of dependency (MBI)	HCNP		Non-HCNP	
	on adm	Post stroke	on adm	Post stroke
0 – 24	28 (80%)	10 (28.6%)	22 (64.7%)	10 (29.4%)
25 – 49	6 (17.1%)	3 (8.6%)	10 (29.4%)	2 (5.9%)
50 – 74	1 (2.9%)	3 (8.6%)	2 (5.9%)	-
75 – 90	-	9 (25.7%)	-	6 (17.6%)
91 – 99	-	10 (28.6%)	-	14 (41.2)

There was no significant difference, (t=0.382, p=0.704) between both groups.
adm : admission

(ADL 91 - 99). There were 6 (17.1%) patients with ADL scores between 25 - 49 and were severely dependent on caregivers at the time of admission. Out of these, one (2.8%) became totally dependent on caregivers (ADL score from 25 - 75 to 0 - 24), two (5.7%) were mildly dependent and three (8.6%) were minimally dependent on caregivers.

In the Non-HCNP group, out of a total of 22 patients, 10 (29.4%) of the stroke patients were still totally dependent on caregivers (ADL score 0 - 24), and four (11.8%) were slightly better; i.e. severely and moderately dependent on the caregivers (5.9% for each level). There were five (14.7%) who were mildly dependent on caregivers. There were 10 patients with ADL scores of 25 - 49 at the time of admission. One (2.9%) mildly dependent on caregiver and nine (26.5%) were minimally dependent on caregivers. Two (5.9%) of the patients in this group have ADL score of 50 – 74 at the time of admission. These two patients have minimal level of dependency post stroke; i.e. (ADL score 91 – 99) (Table 5).

In summary, those patients who were mildly and minimally dependent on caregivers with ADL scores of 75 – 90 and 91 – 99 respectively, the patients were considered fully rehabilitated. The mean score in the HCNP group was 3.20 and in the Non-HCNP 3.35.

The independent (t=0.382, df 67 and p=0.704) showed no significant difference in terms of the level of dependency on caregivers post stroke for both groups.

The alternative treatments were still popular and had been practised in Malaysia, because out of 35 patients from HCNP 25 (71.4%) and 25 (73.5%) from Non-HCNP practised it. Massage is the most popular choice taken either used as a single treatment or combined with acupuncture, herbal medicine, and reflexology. The results of this study showed that ADL scores for patients using alternative treatments were better irrespective of whether they were from the HCNP or the Non-HCNP groups. Studies in the USA showed the positive effects of massage on the body systems (Travell & Simons 1983). Massage helped to decrease muscle tension and simultaneously repair damaged muscles after repeated treatments. The positive effects of reflexology in rehabilitation of stroke patients had also been reported (Kunz & Kunz, 2001). A few studies showed the positive effects of acupuncture on stroke rehabilitation (Shiflett 2001; Asplund 2001; Johansson 1993) with significant difference obtained for both groups when activities of daily living score on admission and activities of daily living of post stroke participants who sought alternative treatments and those who did not were compared. For the HCNP group, the result showed t =-9.654, (df=68, p=0.000), and for the Non-HCNP the result showed t=-9.153, (df=68, p=0.000). There was a

Table 6: The total number who sought alternative treatments

Alternative treatment	HCNP		Non-HCNP	
	YES	NO	YES	NO
	N (%)	N (%)	N (%)	N (%)
Massage	4 (11.4%)	-	6 (17.6%)	-
Acupuncture	4 (11.4%)	-	2 (5.9%)	-
Herbal	3 (8.6%)	-	3 (8.8%)	-
Massage & Acupuncture	5 (14.3%)	-	1 (2.9%)	-
Massage & medicine	7 (20%)	-	10 (29.4%)	-
Acupuncture & herbal medicine	2 (5.9%)	-	1 (2.9%)	-
Massage & Reflexology	-	-	1 (2.9%)	-
Total	**25 (71.4%)**	**10 (28.6%)**	**25 (73.5%)**	**9 (26.5%)**

significant difference between activities of daily living on admission and activities of daily living post stroke for both groups.

CONCLUSION

In this study, a comparison was made between the HCNP and Non-HCNP stroke patients. The results showed no significant difference between the two groups. However, from the results of the study it had identified one weakness, i.e. lack of knowledge about the concept of the HCNP by the service nurses. For example, there was one patient from a nursing home who was accepted as a client. This should not have happened because based on the original concept of the HCNP the rehabilitation of the patients were under the responsibilities of the family members/ caregivers. In this patient she had no relative for the nurses to transfer the complex skills to assist her in the process of rehabilitation. Clients were still dependent on the nurses in performing the complex skills. As such, they were not in a position to take care of their own health. The reason was that the Nurse Manager did not give the nurses proper instructions or briefing on the concept of home knowledge or skills to the clients. With the clients' dependence on the nurses it had definitely prolonged the process of rehabilitation. This could lead to increased complications and frequent re-admissions. In addition, the nurses lacked the confidence to reject cases which were not for home care nursing. Nine patients out of 35, who were totally dependent on the caregivers, were referred to the HCNP only for the purpose of changing the Ryle's tube. These types of cases should be rejected by nurses or managed more holistically.

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