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REVIEW ARTICLE

Managing Further Rehabilitation in Longer-Term Stroke Patients in the Community: A New Approach.

N.A Aziz[1], A.A Raymond[2]

Departments of [1]Family Medicine and [2]Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur.

ABSTRAK

Penyakit angin ahmar (strok) semakin menjadi masalah utama di dalam penjagaan kesihatan di negara kita disebabkan oleh umur populasi negara yang semakin meningkat. Keberkesanan rawatan strok di peringkat akut menyebabkan tiga daripada empat pesakit strok dapat melepasi peringkat akut strok. Doktor dan mereka yang terlibat di dalam penjagaan strok berpendapat bahawa penjagaan strok lanjutan bermula selepas setahun selepas serangan strok, memandangkan tempoh ini berhubungkait dengan kebarangkalian untuk terus hidup selepas mendapat serangan strok. Penjagaan strok lanjutan adalah kompleks, melibatkan keseluruhan aspek kehidupan pesakit; keperluan fisikal, psikologikal dan penglibatan ke dalam komuniti. Proses rehabilitasi yang merupakan tunjang utama penjagaan strok lanjutan seharusnya menumpukan kepada 'evidence-base' untuk menjadi lebih effektif dan relevan kepada pesakit strok.

Kata kunci: Rehabilitasi, strok jangka panjang, komuniti

ABSTRACT

Stroke is becoming a major public health issue in our country due to the fact that there is an increasing life span of our population. Due to advancement of acute management of stroke, three out of four people will survive beyond the acute phase of stroke. Stroke care providers are still debating regarding the exact period of the terminology 'longer-term stroke'; however many agreed that long-term of stroke refers to the period of one year and thereafter as this period is the determinant for longer-term survival. Management beyond the first year of stroke is complex, encompasses all aspects of patient's life; physical, psychological and integration into community. Rehabilitation being the cornerstone of longer-term stroke management should now focused on more evidence-based approach as to be effective and relevant to the stroke patients.

Key words: rehabilitation, long-term stroke, community

Address for correspondence and reprint requests: Dr Noor Azah Aziz, Department of Family Medicine UKM, Jalan Yaacob Latiff, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur. Tel: 03 91733333 samb 2846 Fax: 03 91738153 Email: azah@mail.hukm.ukm.my / a.azah@yahoo.co.uk

INTRODUCTION

Stroke is a major public health problem worldwide. It is the third most common cause of death after coronary heart disease and cancer (McKay & Mensah 2004). Looking into worldwide incidence of stroke, Sarti et al. (2000) found that the incidence of stroke only differs slightly between countries, after being standardized for age and sex. The incidence rates for subjects between the ages of 45 and 84 were between 300 per 100,000 population and 500 per 100,000 population annually. In Malaysia, epidemiological data from the Ministry of Health in 2002 showed that stroke was one of the top five leading causes of death in our country, with mortality rate of 11.9 per 100,000 population (MOH 2002).

Overall, the incidence of stroke, especially in developed countries, has shown a declining pattern which largely appears to be due to control of modifiable blood pressure, improved dietary habits and reduced levels of smoking (Hankey 2002). However, the absolute numbers of strokes will continue to escalate in the future due to one single factor, the increasing life span of the world population. This trend is worrying as a significant number of survivors will still be below the retirement age and therefore have many responsibilities involving families and the workforce (Royal College of Physician 2005). Given that three out of four people survive beyond the acute phase, these individuals may lead a longer life with impairment and disability as a consequence of stroke. It is therefore imperative that stroke clinicians look beyond the acute phase in order to plan and manage the needs of longer-term stroke patients for them to have best quality of life.

Longer-term care of stroke – a definition

The Royal College of Physicians (2004) identifies longer-term care as a period of three to six months post stroke and thereafter (Royal College of Physician 2004). In most patients, longer-term care is the phase which starts soon after transfer from hospital to community, conversely others may identify as the completion of rehabilitation program, including outpatient therapy or any other therapies that has been completed. However, amongst stroke care providers longer-term management is frequently described as 'a year or more after stroke', given the fact that the majority of prospective cohort studies measuring prevalence of stroke had used one year after stroke as a determinant for longer-term survival (Dennis et al. 1993; Grevenson et al. 1991; Patel et al. 2006). Above all, longer-term care for stroke patients is primarily about managing the consequences of stroke in the best way possible, as it relates to patients' quality of life and their relationship with their carers and families, and how best to re-integrate patients into the community with the available resources. In recent years there has been agreement that in overall stroke management, the major elements of longer-term care comprise further rehabilitation, secondary prevention, and involvement in social function (Wilkinson et al. 1997; Murray et al. 2003). This review will address the aspect of further rehabilitation in longer-term management of stroke, as this area of management forms the integral part of overall management for stroke patients that have been discharged home to the community.

Longer-term consequences of stroke

Stroke is a major health problem in the community, with more and more people surviving and living longer after stroke. However, only a small number of community-based studies have looked into the long-term outcome of stroke patients and very few have assessed functional status beyond a year of stroke onset. Studies that observed survival rates after stroke, agreed that almost half of the patients survived one year or longer, and

that the survival rate remained constant up to five years post stroke (Dennis et al. 1993; Grevenson et al. 1991). Disability remains prevalent up to three years post-stroke, with 23-30% having moderate or severe disability (Barthel Index < 15 /20). Patel et al. reported that one in two stroke survivors will remain inactive (Frenchay Activities Index less than 15) at one year after stroke, and a further 30% will require residential care after the first year of stroke (Patel et al. 2006). Wilkinson et al. reported that 46% of stroke survivors needed help with at least one component of activities of daily living (ADL) and named spouse, children and other family members as their main carers (Wilkinson et al. 1997). These two studies used different outcomes in assessing health-related quality of life, but both concurred that the domains that were significantly affected by disability were psychological well being (anxious/ depressed), physical functioning (ADL), physical mobility, general health and social functioning.

Murray et al (2003) and McKevitt et al. (2004), in their reviews of qualitative interviews with stroke patients living more than one year in the community, further explored the nature of problems faced by longer-term stroke patients. Both studies suggested that problems at this stage of stroke were diverse and complex and may change over time. Both reports have identified five common domains that were prevalent at this stage of stroke recovery which include health and social services, problems in accessing information, transfer of care and psychological adjustments. However, these studies were small-scale and geographically localized, focussing more on depth rather than breadth of the problems, and therefore may be only applicable to the selected populations. In summary, there is continuing disability for more than a year after stroke. However the provision of therapy-based rehabilitation services is low. At present there is no agreed consensus about the benefits of providing a service for more than one year after stroke. Documented benefits from community intervention studies are rare in this patient group, as the majority of trials investigated earlier phases of stroke recovery.

Further rehabilitation :The need for a paradigm shift.

The World Health Organization describes rehabilitation as '*the combined and coordinated use of medical, social, educational and vocational measures for training and retraining the individual to the highest level of functional ability*' (WHO 1998). Stroke rehabilitation aims directly and indirectly to increase independence and ability. Not only does it concern prevention of complication, but rehabilitation encompasses all aspects of the patient's life: physical and psychological health and integration into the community. The stroke rehabilitation approach involves multi-disciplinary team, comprising the patient, the family, therapists, nurses, social workers and physicians. As is evident from overall stroke care, rehabilitation starts as early as hours after stroke and continues up after discharge and into longer term care which involves in-hospital settings to various settings in the community (Hankey 2002). Stroke rehabilitation is a continuous process starting as assessment in the stroke unit and ending only when it no longer produces any positive effect on the patient (Mant et al. 2004).

It was initially thought that progress of stroke patients reached a functional plateau such that little or no recovery occurred after a certain period of time and hence the fixing of three to six months for formal rehabilitation programmes (Pollack & Disler 2002). However, current evidence has demonstrated that stroke survivors showed late functional improvement, even after several years post stroke, and those with continuing decline might be reversed by further rehabilitation input (Mant et al. 2004). Therefore it is now suggested that

any patient who has had a stroke reporting significant disability at six months post-stroke should be reassessed and offered targeted re-habilitation to improve functional capabilities (Department of Health 2001).

This emerging evidence in longer-term rehabilitation has brought about a new direction on how rehabilitation should be carried out at this stage after the stroke. It is now suggested that further rehabilitation should move away from the 'activity' phase and address the issue of 'participation' as defined by Wade and Jong as in Table 1 (Wade & Jong 2000). The overall design of this table shows that the approach of rehabilitation towards stroke patients now encompassed a more holistic approach in managing patients; whereby rehabilitation now not only involves intervention to the disabilities and handicaps but helping the stroke patient to improve his/her functional status and to re-integrate into the society. This is particularly important, as patients need to learn to be more independent and try to re-integrate into the community, rehabilitation should concentrate more on social and leisure activities that help improve patients' post-stroke functioning level rather than repetitive functional exercises that are commonly performed at present. Several trials have addressed the issue of leisure and social intervention in stroke patients residing in the community, but to this date these studies were small, so that no significant conclusion should be made although individual results showed promising outcome (Drummond & Walker 1995; Logan et al. 1997)).

Trials looking at rehabilitation intervention at this phase of stroke can be divided into those concerned with transfer from hospital to the community and those that were performed in the community itself. The Outpatient Service Trialist systematic review, which looked into 14 community rehabilitation intervention trials involving 1617 patients within a year of having stroke, demonstrated reduced risks of deterioration in ability to the undertake activities of daily living (ADL) and significantly improved the performance of ADL (Outpatients Service Trialist 2002). The meta-analysis also found that common features shared by these studies were that staffs carrying out the intervention were knowledgeable and had specific interest in stroke care and that outcomes were achieved by altering task-associated behaviour. The exact nature and content of intervention were not known, as the studies were heterogeneous in their approach, but it can be concluded that community rehabilitation intervention is both feasible and effective.

On the other hand, there have been a few studies that have addressed the needs of stroke patients more than a year after having a stroke. Two mobility intervention studies demonstrated a short-term improvement in treatment effects as measured in Barthel scores, but these effects were small and intervention was conducted in small scale studies with short intervention periods (Wade et al. 1991; Green et al. 2002). Studies that looked into leisure intervention showed similar trends (Mulders et al. 1989; Werner & Kessler 1996). A Cochrane systematic review is currently in progress in order to establish the evidence of the effectiveness of rehabilitation services more than a year after a stroke, hoping to provide a foundation for better services in the future (Aziz et al. 2006). Without doubt, the element of further rehabilitation is proven to be an important aspect in longer-term care of stroke patients. Consequently there is a need to look again at this aspect of management of the longer-term stroke patients in the community.

CONCLUSION

Management of longer-term stroke patients consists of inter-related key elements that are both complex and long-standing. Awareness of the benefits of combining

Table 1: Rehabilitation-framework model of revised ICIDH (ICF) (Wade & Jong 2000, AHCPR 1997*)*

Term for level of illness	Alternative terms	Comments
Pathology	Disease, diagnosis	Abnormalities or changes in the structure or function of an organ or organ system
Impairment	Symptoms; signs	Abnormalities or changes in the structure of function of the whole body
Activity (previously 'disability')	Function; observed behaviour	Abnormalities changes, or restrictions in the interaction between a person and his or her environment or physical context (that is, changes in the quality or quantity of behaviour)
Participation (previously 'handicap')	Social position and roles	Changes, limitation, or abnormalities in the position of the person in their social context.
Domain for contextual factors	Examples	Comment
Personal	Previous illness, previous coping strategies, preferred leisure activities and hobbies	Primarily attitudes, beliefs and expectations, often arising from previous experience of illness in self or others.
Physical	House, local shops, access to buildings	Primarily local physical structures but also includes people as carers (not as social partners)
Social	Laws, friends	Primarily legal and local cultural setting, including patient's expectation of important people in their life.

ICIDH – International Classification of Impairment, Disability and Handicap
ICF – International Classification of Function

these elements of care to provide holistic management of stroke patients in the community. Current guidelines on stroke have set a clear and explicit standard of care for the components of acute management, secondary prevention and an early rehabilitation programme for stroke patients. Nevertheless, with the emergence of evidence on longer-term stroke management especially in the area of further rehabilitation, a new approach to the rehabilitation of stroke patients in our community needs to be considered. Perhaps what is required now is a new outlook on the longer-term care of stroke patients in Malaysia, which involves the intertwining elements of care and evidence based medicine described above, which will fit into our unique social and cultural way of life.

REFERENCES

Aziz, N.A., Leornardi-Bee, J., Walker, M.F., Phillips, M., Gladman, J.R.F., Legg, L. 2006. Therapy-based rehabilitation services for stroke patients living at home more than one year after stroke (Protocol). Cochrane Library. Issue 2.

Dennis, M.S., Burn, J.P.S., Sandercock, P.A.G., Bamford, J.M., Wade, D.T., Warlow, C.P. 1993. Long-term survival after first ever stroke: the Oxfordshire Community Stroke Project. *Stroke* **24**: 796 – 800.

Department of Health. 2001. National Services Framework for Older People. Department of Health, London.

Drummond, A.E.R., Walker, M.F. 1995. A randomized controlled trial of leisure rehabilitation after stroke. *Clinical Rehabilitation*. **9**: 283 – 290.

Green, J., Forster, A., Boyle, S. 2002. Physiotherapy for patients with mobility problems, more than one year after stroke. A randomised controlled trial. *Lancet.* **359**(9302): 199 – 203.

Grevenson, G.C., Gray, G.S., French, J.M., James, O.S. 1991. Long-term outcome for patients and carers following hospital admission for stroke. Age and Ageing. **20**: 337 – 344.

Hankey, G.J. 2002. Stroke. Your Questions Answered. Perth. Churchill Livingstone Publication.

Logan, P.A., Ahern, J., Gladman, J.R.F., Lincoln, N.B. 1997. A randomized controlled trial of enhanced social service occupational therapy for stroke patients. *Clinical Rehabilitation*. **11**: 107 – 113.

Mant, J., Wade, D., Winner, S. 2004. Health care need assessment: The epidemiologically based needs assessment reviews. Second Edition. Oxford. Radcliffe Medical Press.

McKay, J., Mensah, G.A. 2004. The Atlas of Heart Disease and Stroke. World Health Organization (WHO) Publication.Geneva.

McKevitt, C., Redfern, J., Mold, F., Wolfe, C. 2004. Qualitative studies of stroke: a systematic review. Stroke. **35**: 1499-1505.

Ministry of Health. 2002. Health Indicator. MOH

Mulders, A.H.M., De Witte, L.P., Diederick, J.P.M. 1989. Evaluation of a rehabilitation after-care programme for stroke patients. *Journal of Rehabilitation Sciences*. **2**(4): 97 – 103.

Murray, J., Ashworth, P., Forster, A., Young, J. 2003. Developing a primary care-based stroke services. A review of qualitative literature. *British Journal General Practice*. **53**: 803 -807.

Outpatients Service Trialist. Therapy – based rehabilitation services for stroke patients at home. The Cochrane Database of Systematic Reviews, 2002; Issue 2.

Patel, M.D., Tilling, K., Lawrence, E., Rudd, A.G., Wolfe, C.D.A., McKevitt, C. 2006. Relationships between long-term stroke disability, handicap and health related quality of life. Age and Ageing. **35**: 273 – 279.

Pollack, M.R.P., Disler, P.B. 2002. Rehabilitation of patients after stroke. *Medical Journal of Australia.* **177**(8): 452-456.

Royal College of Physician. 2004. National Clinical Guidelines for Stroke. Royal College of Physician, London.

Royal College of Physician. 2005. Stroke Medicine: A Guideline. Royal College of Physician, London.

Sarti, C., Rasteny, L.D., Cepaitis, Z., Tuomilehto, J. 2000. International trends in mortality from stroke, 1968 – 1994. *Stroke*. **31**: 1588 – 1601.

Scottish Intercollegiate Guideline Network (SIGN). 1998. Management of patients with stroke. Edinburgh: Royal College of Physician. Edinburgh.

Wade, D.T., Collen, F.M., Robb, G.F., Warlow, C.P. 1991. Physiotherapy intervention late after stroke and mobility. *British Medical Journal*. **304**(6827): 609 – 613.

Wade, D.T., Jong, B.A. 2000. Recent advances in rehabilitation. *British Medical Journal* **320**: 1385-1388.

Werner, R.A., Kessler, S. 1996. Effectiveness of an intensive outpatient rehabilitation program for postacute stroke patients. *American Journal of Physical Medicine and Rehabilitation*. **75**(2): 114 – 120.

Wilkinson, P.R., Wolfe, C.D.A., Warburton, F.G., Howard, R.S., Ross-Russel, R., Rudd, A.G., Beech, R.R. 1997. A long term follow-up of stroke patients. *Stroke*. **28**: 507-512

World Health Organization (WHO). 1980. International Classification of Impairments, Disabilities and Handicaps. Geneva.