The Redbridge Stroke Unit - Experience gained from a one year Study

Pages with reference to book, From 184 To 188

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Abstract

Objective: To assess the impact of stroke unit on overall management of stroke illness within the district.
Setting: A multidisciplinary stroke unit.
Methods: Study was made of the mortality, durations of stay and discharge destinations of 76 patients with stroke selected for stroke unit rehabilitation from a total of 164 stroke patients admitted to the Redbridge Hospitals during a 12 month period. These were compared with the outcomes of stroke patients admitted during the year prior to the Unit opening.
Results: There was no difference in mortality, 16% in each group. The durations of admissions of patients treated in the Stroke Unit were longer than the control group, although there was no increase in the mean duration of hospitaL stay of the total number of stroke patients. When patients treated in the stroke unit were compared with a selected control group taken from the stroke patients admitted during the previous yeas; 27% more patients were discharged back into the community, 4% less patients required long stay elderly care and 20% less patients required further rehabilitation outside the district. When all stroke admissions were considered, 29% more patients were discharged home, 10% less patients required long stay care and 15% less patients required further specialised rehabilitation.
Conclusion: Treatment in the stroke unit substantially improved patient outcome (JPMA 49:184, 1999).

Introduction

Stroke illness is one of the most common causes of death and disability, with 100,000 first ever strokes occurring in Britain each year (2 per 1000 of the population)[1]. This accounts for 12% of all deaths in England and Wales[2] and 20% of all strokes patients die within the first four weeks[3]. Within a population of 250,000, such as the Redbridge Health Care District, it has been estimated that at any time there are 1500 survivors from strokes within the community and of these 750 will have significant neurological deficits[4]. Because of their residual disabilities many stroke survivors are often no longer able to live independently in the community. It may be possible to transfer some of these patients into long stay nursing establishments, but it may be impossible to find suitable placements such that these patients may never be discharged from hospital. Furthermore, the rate of any recovery which may take place is often slow requiring long hospital admissions during which time these disabled patients occupy acute medical beds.

From the available statistics[5], the incidence of stroke requiring hospital admissions within the Redbridge Health Care District was estimated to be over 300 per year. The Redbridge Stroke Unit was therefore developed in an attempt to improve the quality of care and further develop the rehabilitation of stroke patients in the district. The unit opened comprising of ten beds sited at Barking Hospital with a multi-disciplinary team of medical and nursing staff, physiotherapists, speech therapists, occupational therapists arid social work support.

It was intended that the Unit would be largely nurse managed, with a minimum of input from the

medical staff. It was therefore important that strict criteria were applied when assessing a patient's suitability for rehabilitation. Stroke illness mainly affects elderly patients who frequently have additional active medical disorders requiring specific treatments and which may render them unsuitable for intensive physiotherapy. These conditions include myocardial infarction, cardio/respiratory failure, renal failure and malignant diseases and paients with these conditions were excluded from the Unit rehabilitation programme. Also excluded were patients with depressed conscious levels and those with relatively little neurological deficit who would be expected to have been discharged home within two weeks. Selected patients were only transferred to the Unit when they were considered to be medically stable, usually within the first ten days of their admission.

After multi-disciplinary assessments, stroke patients were selected for intensive treatment by which each patient received an individually planned programme of rehabilitation aimed to achieve optimal mobility and functional independence. Their progress was monitored in weekly multi-disciplinary meetings, with regular contact with relatives and carers to provide support and counselling and to promote a positive attitude towards discharge. In addition-patients home environments were assessed by home visits so that any necessary adaptations could be expedited and supporting organisations mobilised for when the patients were discharged home. The unit has now been open for a year and this study was aimed at assessing what impact if any it has had on the overall management of stroke illness within the district.

Patients and Methods

A prospective study was undertaken on stroke patients admitted to the Redbridge District General Hospitals (King George Hospital Ilford and Barking Hospital, Barking) during the year following the opening of the Stroke unit. A retrospective survey was also made by the examination of the case notes and physiotherapy records of all patients with acute stroke illness admitted to the same hospitals during the year prior to the Unit opening. From this a sub-group of some patients were identified who were comparable to those selected for Unit rehabilitation. They were taken as controls for comparison with the outcomes of patients treated in the Unit.

Stroke patinets disabilities were assessed using a modified Barthel index[6]. In the control group documentation was incomplete such that it was not possible to obtain complete activities of daily living (A DL) scores. Therefore, mortality, duration of hospital stay and discharge destinations were used as parameters to test the impact of Stroke Unit on patient outcome.

Results

Seventy six patients with stroke were selected for stroke unit rehabilitation from a total of 164 stroke patients admitted to Redbridge Hospitals during a 12 months period. These were compared with the outcomes of stroke patients admitted during the year prior to unit opening (Table 1).

Table 1. Details of all stroke patients admitted to the Redbridge hospitals.

	Total Stroke Patients		Unit	Control
	Unit Year	Previous Year	Patients	Patients
No. of patients	164	135	69*	57
Mean age (range)	76(36-96)	73(28-95)	71(36-94)	73(28-95)
Sex				
Males	77 (47%)	71 (53%)	32 (46%)	24(42%)
Females	87 (53%)	64 (47%)	37 (54%)	33 (58%)

*7 patients still in stroke unit at the time of study, not included in statistics.

There was no difference in mortality (16%) in each group. Twenty seven percent more patients were discharged back into community, 4% less patients required long stay elderly care and 20% less patients required furture rehabilitation outside the district. When all strohc admissions were considered, 29% more patients were discharged, 10% less patients required long stay care and 15% less cases required further rehabilitation (Table 2).

Table 2. Results of all stroke patients admitted to Redbridge hospitals.

	Total Stroke Patients			Unit	Control	
	Unit Year			Previous Year	Patients	Patients
			P value			P value
Mortality No. (%)	37 (22)	34 (25)	NS	11 (16)	9 (16)	NS
Mean duration of stay of						
Survivors in days (range)	37 (1-192)	36 (2-173)	NS	60 (10-192)	42 (8-173)	<0.01
Discharge destinations:						
Home	111 (68%)	52 (39%)	<0.01	49 (71%)	25 (44%)	<0.01
Further rehab	4 (2%)	23 (17%)	<0.01	4 (6%)	15 (26%)	< 0.01
In a specialised unit						
Outside the district						
Geriatric long stay	3 (2%)	16 (12%)	<0.01	3 (4%)	5 (8%)	NS
Nursing homes	3 (2%)	5 (4%)	NS	1 (1.5%)	1 (2%)	NS
Other hospitals	3 (2%)	4 (3%)	NS	0 (0%)	1 (2%)	NS
Unknown	3 (2%)	1 (1%)	NS	1 (1.5%)	1 (2%)	NS

NS= not significant.

Discussion

An ideal medical service for stroke patients would include measures to reduce incidence and mortality in addition to the rehabilitation of patients following the occurrence of stroke. When patients are admitted under the care of general physicians, the emphasis is often directed at treating the acute illness, although there is no evidence to prove that acute treatment affects the natural history of stroke[7]. In many health districts there are no formalised rehabilitation services for treating stroke patients[8], yet it would seem more appropriate to concentrate on treating their disabilities, as it has been suggested that this approach would produce a better overall improvement in these patients[9-11], although doubt has been expressed as to whether formal stroke unit rehabilitation influences the natural history of cerebral infarction[7].

The main objectives of the Redbridge Stroke Unit were to reduce the disability of affected patients and to enable them to regain their functional independence quicker so that more patients could be discharged back into the community. These were important goals, more so when set against the current financial changes within the National Health Service. It has been estimated that between 50 and 70% of acute stroke patients are admitted to hospital[4], with 118,500 hospital admissions in England per year[12], these patients requiring considerable expense in their care as their admissions are often prolonged with patients blocking acute hospital beds.

When developing the Stroke Unit it was expected that about 300 patients would be admitted per year, this prediction being based on the available statistics[4]. However, this proved to be a considerable overestimate as only 135 and 164 stroke patients could be identified from the admissions from the year before and the year after the Unit opened respectively. The figures presented in this survey come from personal inspection of the patients records and provide a good representation of the Redbridge Health Care District. However, it must be stressed that this study only considered patients admitted to hospital and not the total occurrence of stroke illness within the community. Admissions to hospitals in neighbouring health districts were not considered in this study.

Treatment in the Unit made no impact on the overall mortality of the stroke patients. The reported average duration of admissions of stroke patients varies from 19.5 to 37.8 days depending on who was treating the patients[13]. The policy of the Redbridge Stroke Unit was to treat patients for up to eight weeks and as such the Unit made no attempt to reduce the duration of patients admissions. Indeed, this policy may have prolonged the admissions of some patients, the intention being to improve the patients overall mobility and independence at the time of discharge. The patients treated in the Unit had substantially longer admissions (mean 60 days) than the control group (mean 42 days). Despite this, the overall duration of admissions of surviving stroke patients was unchanged in the year following the opening of stroke unit (37 days in the stroke unit year compared with 36 days in the year before). The Unit was developed using only existing resources and the prolonged admissions of some patients were considered acceptable when compared with the overall benefit that these patients received. It is anticipated that as more experience is gained, in the management of these patients, the duration of Stroke Unit admissions will be reduced.

Despite prolonging the overall admissions of patients admitted to the Unit there was a significant improvement in their discharge destinations, with more patients being sent home.

Prior to the opening of the Unit, stroke patients were frequently transferred for further treatment at a rehabilitation centre outside the Redbridge Health Care District. This applied to 17% of all hospitalised stroke patients during the year prior to the opening of the Unit. Following the opening of the Unit only 2% of patients were referred. That this improvement reflected treatment in the Unit was demonstrated as only 6% of Unit patients needed further rehabilitation whereas it was necessary in 26% of the control group This further proved that a locally based be successful, this being particularly the

emergence of hospital trusts and cross service could important with boundary financing.
Prior to the opening of the Unit, 12% of surviving patients were unable to be discharged home and had to be transferred to long stay geriatric beds. This was often a lengthy process with patients often occupying acute medical beds until long stay elderly care beds became available. Since the Unit opened, only 2% of patients needed long stay hospitalisation, again with less unit patients requiring geriatric referrals, 4% compared with 8% in the control group. This again emphasises the impact the Unit has had on patient discharge destinations.
Despite difficulties in demonstrating, that patients actually benefit from rehabilitation in stroke units, The Royal College of Physicians strongly recommends the setting up of such units within district general hosptials[8]. Their report suggested that stroke patients admitted to general medical wards probably do not receive the specialist care that they warrant, as there are probably no staff specifically trained or dedicated to treating stroke patients. It was also suggested that stroke units provide models by which methods of treating stroke patients could be assessed and compared to improve the quality of future care. Also it was suggested that patients would be treated most effectively and economically if those with similar disorders were treated together in specialist units and that stroke units could reduce the duration or patients admissions and enable patients to regain their independence quicker[14].
The Royal College has recognised that rehabilitation treatment consists principally of physiotherapy, speech and occupation therapy rather than medical input and has supported the concept of a multi-disciplinary approach, but recommends that stroke units should be lead by a physician to provide medical expertise in clinical diagnosis and prognosis[8]. The lead physician could be a specialist in rehabilitation, a general physciaii or geriatrician with an interest in strokes, or even a neurologist as in the Redbridge Unit.
The multi-disciplinary approach adopted in the Unit conforms well with the Royal College recommendations. These also stress the importance of a full patient assessment before entry to the stroke unit, with regular monitoring of changes in patients progress by specifically trained physiotherapy, speech therapy and nursing staff, to enable clarification of the often changing and differing aspirations of the staff and patients. The importance of individually planned rehabilitation and planned smooth transitions of the patients back into the community cannot be over emphasized. It is also important that rehabilitation should have a recognised time frame, which can still be flexible, but which offers the patients and carers a realistic approach to the treatment and its goals. Throughout the year these regular assessments have also proved useful in further developing the expertise of all members of the multidisciplinary team.
During the year since its opening, the Redb.ridge Stroke Unit treated 76 patients with strokes with over a 90% bed occupancy. Without the Unit these patients would have been treated by the admitting general physicians in the general medical wards. Each patient was fully asessed and received an individually planned course of rehabilitation, in line with the recommendations of the Royal College of Physicians for the treatment of stroke patients. So far the Unit has functioned within the existing budget. but it is hoped that with further development of the Unit, the improvement of the quality of patient care and ultimate shortening of admissions of stroke patients, that funding will be made available for the expansion of this facility and that this preliminary survey of the unit's activity will encourage its continuation and spearhead the development of much needed rehabilitation services within the district.

References

1. Bamford .I, Sandercock P. Dennis M A prospective e study of acute cerebrovascular disease in the community. The Oxfordshire Community Stroke Project Methodology, demography and incident cases of first over stroke. J. Neurosurg. Psychiatry. 988:51:373-80.

2. Department of Health. The health of the nation, 19911 IMSO: (Cm 1523).
3. Bamford J, Sandercock P, Dennis M, et al. A prospective study 0f acute cerebrovascular disease in the community. The Oxfordshirc community stroke project-i 981-86. 2. Incidence, case fatality rates and overall outcome at one year of cerebral infaraction. primary intracerebral and subarachnoid haemorrhage. J. Neurol. Neurosurg. Psychiatry, 199:53:16-22.
4. Langton-Hewer R. Rehabilitation after stroke. Q. Med J., 1990;76:659-74.
5. Bamford J, Sandercock P. Warlow C. The Oxfordshirc Community Stroke Project. Br. Med. J., 1986; 1:1369-72.
6. Mahoney Fl, Barthel DW. Functional evaluation, the Barthel Index. Maryland State Med. J,, 1965;14:61-65.
7. Wade DT, Langton-Hewer R. Rehabilitation of stroke, Handbook of Clineal Ncruology,Vascular disease. ed. Toole JF, Amsterdam, Elsevier, 1989, pp. 223-56.
8. A report of the Royal College of Physicians. Stroke. Towards a better management. The Royal College of Physicians of London, 1989.
9. Smith ME, Garraway WM, Smith DL, et al. Therapy impact on functional outcome in a controlled trial of stroke rehabilitation. Arch. Phys. Med. Rehabil., 1 982;63:2 1-24.
10. Effective health care. Stroke rehabilitation. Effective health care, 1992 ;2: 1 - -11.
11. Indredavkik 13, Bakke F, Solberg R, et al. Benefit of a stroke unit: A randoinised controlled trial. Stroke, 1991 ;22: 1026-31.
12. Office of Health Economics. Stroke (series of papers on current health problems, 89). London: OHE, 988.
13. Wade DT, Wood VA, Langton-Hewer R. Use of hospital resources by acute stroke patients. J. R. Coil. Physicians, London, 1985;19:.48-52.
14. Wade DT, Acute stroke: Treatment and rehabiliation Hospital update, 1992,18:370-76.