Stroke rehabilitation

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This conference, which took place at the Royal College of Physicians on 30 November 1998, was organised and chaired by Professor D L McLellan of the Rehabilitation Research Unit, University of Southampton.

Prognosis

Predictors of response to rehabilitation

To provide a well-planned rehabilitation service, under the right conditions, it is important to identify the individual factors that predict patients' responses to rehabilitation.

Improvements after a stroke are brought about by natural recovery, patients' response to rehabilitation, the effectiveness of the rehabilitation offered, or a combination of the three; but outcomes are often measured in terms of service requirements alone. Patients' own views on their recovery were recorded in only six of 200 papers.

Therapists think that patients who have only physical problems respond best to rehabilitation; those with altered cognition, especially poor attention and distractability, and patients with little carry-over between sessions, have a poorer outcome.

Positive predictive factors include stroke unit care and supportive families; having a spouse is an important factor in predicting discharge from hospital. (A member of the audience argued that carers can also disempower patients, illustrating the individuality of patients undergoing rehabilitation). Patients with a higher level of perceived control do better than those who are not bothered with goals or compensation[1]. Patients may be geographically located on a rehabilitation ward but not receive rehabilitation, as this only occurs if they take an active part in the process. Appropriate goal setting is essential.

Discussants of this paper were anxious that patients should not be excluded from rehabilitation by inaccurate or premature negative predictions.

Predictors of spontaneous recovery of physical and cognitive impairment after stroke

Although doctors are generally aware that age, previous stroke, urinary continence and confusion are useful predictors, they take little account of sitting balance. Yet early achievement of sitting balance is one of the strongest factors in predicting the final level of mobility. As urinary continence is a powerful predictor of whether patients return home, would improving it lead to a better outcome?

At one year 60% of patients with lacunar anterior circulation stroke (LACS) are independent compared with just 5% of those with total anterior circulation stroke (TACS). Mortality in LACS is lower, but dependence is 30%; close to the 35% dependence of TACS.

Patients with motor involvement alone have a better chance of walking independently than those with motor-sensory involvement; and patients with motor-sensory involvement in combination with hemianopia have the least chance.

Do rehabilitation programmes after stroke work?

The Stroke Unit Trialists Collaboration reviewed 25 trials in which stroke units were compared with control groups[2]. In the stroke units mortality was 4% lower, 2% more patients avoided being discharged to institutional care and an additional 5% returned home. The participating stroke units offered coordinated multidisciplinary care, as well as staff specialisation in stroke rehabilitation together with regular staff training; and routinely provided information for patients and carers.

Some individual rehabilitation programmes, or more intensive therapy, have a positive effect on outcome, but this evidence is less secure than the evidence in favour of stroke units. The recently founded STEP programme (Stroke Therapy Evaluation Programme) will strengthen evidence-based practice in stroke therapy.

Acute rehabilitation

Safeguarding nutrition and respiratory function in the first four weeks after a stroke

Up to 45% of patients admitted to hospital with a stroke suffer dysphagia. The complications of this are dehydration, malnutrition and aspiration, which in turn may result in death, pneumonia, abscess formation, an increased risk of pressure sores, poor wound healing, lower resistance to infection and decreased muscle strength.

Dysphagia can be detected by bedside swallow assessments (speech and language therapists determining the optimal conditions for swallowing). Alternative methods include videofluoroscopy (not always practical), measuring oxygen desaturation during swallowing (its reliability still needs to be proved) and nasal endoscopy.

Feeding policies vary greatly and randomised controlled trials are needed to identify the optimum practice. The 'Food Trial' is in the process of examining the effectiveness of oral supplements and the optimum timing of instituting feeding, and compares percutaneous gastro-enteric feeding with nasogastric feeding. Secondary outcomes to be studied include the proportion of prescribed feed administered, complications of feeding regimes, complications of stroke,

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the time from admission to the start of feeding, place of residence at six months and quality of life. At the time of the conference 800 patients had been randomised from 70 centres in 12 countries. Wide participation in this trial will be necessary to recruit 9,000 patients for randomisation by the year 2002.

Specific strategies for dealing with neglect of body parts or space after stroke

Patients with lesions in the right, compared to the left, hemisphere show more primary motor sensory deficits, higher incidence of poor arm use, visual field deficits, attention deficits and poor proprioception. Single case studies using a limb activation device with auditory feedback if movement is not made, have shown a reduction in unilateral neglect and improved left motor function.

Could neglect be reduced by imagining movements? To do that, patients would need the apparatus for imagination and therefore an intact occipital cortex for actual sensory activity.

Should all patients who wish to have one, be provided with a wheelchair as soon as possible after stroke?

There are pros and cons regarding the use of wheelchairs soon after stroke. The argument in favour suggests that with adequate attention to seating there should be no increase in adverse effects but that motivation and morale should increase. The argument against suggests that early use leads to increased effort, abnormal tone, abnormal weight distribution and reduction in eventual functional ability. Electric chairs may avoid these potential adverse neuromuscular effects.

Rehabilitation in the community

Research is still being carried out on differences in outcome between coordinated early discharge team and no coordinated early discharge team. Preliminary data show no significant difference in death rates, but patients may do worse in terms of dependency if discharged without coordinated care.

Figures are favourable when comparing costs. The cost of a conventional hospital package can be £7,430. Reducing the stay by six days combined with the same levels of inpatient therapy continued in the community, can cost £6,799. If this difference is extrapolated for longer stays, even bigger savings can be made. For example, a six-day reduction from a conventional length of stay of 34 days could potentially release enough beds to allow the treatment of 29 extra stroke patients.

When considering patients' views on early discharge there was no difference in patient satisfaction between those who had inpatient rehabilitation and those who were discharged earlier with community rehabilitation.

Encouraging as these trends seem, can they be generalised? Are there subgroups for whom early discharge is good or bad? Would it be feasible to avoid admission altogether? Can these schemes be put outside trials? Where should the interface between primary and secondary care be? What are GPs' views on early discharge?

Does 'maintenance rehabilitation' prevent morbidity and maintain participation six months or more after a stroke?

Patients may develop a new impairment, the level of impairment may change, or patients' environments may alter. Health professionals can monitor the development of complications or improve a static situation. Function can improve late after a stroke. Three prospective controlled studies have demonstrated increased independence with either in- or outpatient intervention; one showed improvement in mobility as late as two to eight years after the stroke.

The long-term care needs of patients are not always adequately met. This includes specific specialised care to prevent complications (eg stretching and botulinum toxin in spasticity), offering ongoing emotional support, and opportunities for social interaction and participation in meaningful activities.

After discharge, late intervention can increase independence and leisure activities. An assessment is warranted more than six months after stroke, especially if circumstances change. Function often declines slowly late after stroke and relatively small interventions can reduce this decline.

The debate remains as to whether patients should be seen routinely at fixed intervals. This may be useful in secondary prevention; it enables intervention if there is evidence of decline, and allows assessment of complications. Follow-up could, however, reinforce medical aspects of illness or maintain unrealistic hopes, and it poses major resource implications. There is no evidence that routine follow-up is of benefit.

Equity in stroke rehabilitation

Do younger patients get a raw deal?

The rehabilitation needs of younger patients differ from those of the elderly population. In particular, their premorbid lifestyles and leisure interests may differ considerably. Patients under 65 years need the opportunity to earn a living, and require freedom to play an active role in parenthood and participate in other aspects of family life.

The rehabilitation service in Leeds helps patients to fulfil their previous roles. This involves a rehabilitation placement scheme implemented at home, with a senior occupational therapist supervising carers who provide the rehabilitation.

There is a need for informed staff to recognise when independence in personal care is inadequate so that issues concerning vocational rehabilitation can be addressed.

The rehabilitation needs of younger patients could be addressed in either young disabled units or in stroke rehabilitation units. This might shorten the time younger patients have to wait for rehabilitation.

Operational differences between stroke rehabilitation services in different parts of the UK

The availability of services varies between and within trusts. In Wessex there are large variations in access to carotid flow measurements and in time delay to see a surgeon for carotid endarterectomy. The admission of stroke patients varies depending on the existence of an acute stroke unit, active consultant encouragement, stroke severity, and the availability of home support. Variations exist as to where patients are first assessed in hospital: 20% in A&E, 47% in medical assessment units, 13% in acute stroke units and 20% in general medical wards. If patients are admitted as the result of 999 calls, 60% go to three different locations in the first week. There are also variations in the numbers of nursing staff and occupational and physiotherapists (by up to four times), with no obvious relationship between staffing, case mix and desired outcomes.

Stroke rehabilitation: the way forward

Novel and different approaches need to be explored

- by studying psychosocial rehabilitation in greater depth. Why do some patients with minor impairments do badly while others with more marked impairments do well?
- by helping to engage the physical world by employing orthoses and environmental control systems
- by finding ways to reverse impairments
- by finding ways to drive neural plasticity. In one study of transcranial magnetic stimulation in strokes affecting the dominant hemisphere, those patients who recovered developed a new swallowing centre in the opposite hemisphere.

General comment on conference

Attendance for the day was excellent; the conference was oversubscribed. This reflected the fact that the programme was comprehensive and of relevance to elderly care physicians, rehabilitation physicians, therapists and other health care professionals.

From a trainee's perspective, it provided a thorough review of recent literature which can often appear complicated and confusing. It highlighted areas of research which required further input: eg are there individual components responsible for the positive results of stroke units? There were plenty of new ideas and refreshment of information previously studied at the time of the MRCP(UK) examination. This will help to improve our every-day clinical practice.

References

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2. Stroke Units Trialists Collaboration. Collaborative systematic review of the randomised trials of organised inpatient (stroke unit) care after stroke. *Br Med J*, April 1997;**314**:1151–9.

Careers in academic medicine

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'We have met many young aspiring academics who are full of enthusiasm for their research, and want nothing more than to be encouraged to get on with it'[1]

The College organised a day conference called Careers in Academic Medicine in January 1999. It was attended by some 180 delegates, consisting mainly of young clinical academics in training. In addition, postgraduate deans and research funding agencies (Medical Research Council, Wellcome Trust, Imperial Cancer Research Fund, British Heart Foundation and NHS Research and Development) were well represented and took an active part in discussion.

The great importance of the subject for the future of medicine was clearly evident, a fact stressed by the contribution of the College President, Professor George Alberti. A practical approach to the problem was discussed, with presentations by clinicians who had relatively recently experienced clinical academic training.

A similar conference on academic clinical medicine was held some eight years ago and on first reflection it would be easy to say that little has changed. The same problems with which academic clinicians have wrestled for many years remain, but have been reinforced by the introduction of relatively rigid training schemes and the requirement of certification of completion of clinical training (CCST) for senior lecturer or consultant appointment. The pace of research has undoubtedly increased and the biggest problem for the clinical academic in training was identified as the great difficulty in maintaining credible research coincidental with clinical training. In addition, this situation is being progressively compounded for the established clinical academic by

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