Rehabilitation of cerebrovascular disorder (stroke): early discharge and support. A critical appraisal of the literature

Weir R P

Authors' objectives
The review included two objectives: firstly, to critically evaluate the effectiveness of early discharge and community support in the management of patients following stroke. Secondly, through the evaluation of objective one, evaluate methods of co-ordinating services that encompass primary and secondary care management of patients following a stroke.

Searching
The following databases were searched: MEDLINE, EMBASE, Current Contents, CINAHL, DARE, Cochrane Library, NHS Economic Evaluation Database, Healthstar, Clippsy (carer burden strategy only), TRIP (Turning Research into Practice) database, and publications as well as current projects of the International Network of Agencies for Health Technology Assessment (INAHTA). All searches were from 1984 onwards and full details of the search strategy was presented in the text. The reference list of publications obtained during the course of the project was also scanned. There was no attempt to systematically identify unpublished data. Search strategies were presented.

Study selection
Study designs of evaluations included in the review
Meta-analysis, randomised controlled trials (RCTs), non-RCTs, cohort studies, case-control studies, before and after studies (using a before and after comparison of an intervention). Economic analyses were also considered for inclusion in the review. Studies were excluded if they included a sample size less than 50, participation rate less than 50%, follow-up rate less than 50%, and published as a letter or abstract only. Only studies which included a control group were included in the intervention sections. The follow-up period ranged from 3 to 19 months.

Specific interventions included in the review
Early discharge, home based rehabilitation and community base interventions. Control usually involved conventional care, hospital based rehabilitation or no access to the community programme. The type of community based interventions investigated by included studies were occupational therapy in the home setting, access to specialised nursing care, social support, additional out-patient rehabilitation, and community based programme to improve patient and post hospital care. The review also investigated the impact of stroke patients orientated interventions on carer health.

Participants included in the review
Patients who have had a stroke and their carers. Studies were excluded if less than 50% or a non-defined proportion of the study population had a stroke. Where given, the mean age range of included patients was 67-75.

Outcomes assessed in the review
Any patient or carer related outcomes reported by the study were included in the review. The specific outcome measures used included early discharge, mortality, readmission, stroke recurrence, length of hospital stay, living status, health of the patient or carer and rehabilitation outcomes. The measures used to assess outcomes within included studies were the Barthel index, Beck's depression inventory, Brunnstrom's motor rating, Centre for Epidemiologic Studies-depression scale, Dartmouth Coop Function Charts, ESCROW, extended activities of daily living, family assessment device, Frenchay activities index, general health questionnaire, geriatric depression scale, hospital anxiety and depression scale, Jebsen hand function evaluation, Katz activities of daily living, Lindmark motor capacity assessment, Motor club assessment, Nine hole peg test, sickness impact profile, social support inventory for stroke survivors, state trait anxiety inventory.

How were decisions on the relevance of primary studies made?
A single reviewer assessed identified articles for inclusion using the previously stated criteria.
Assessment of study quality
Articles were appraised using the schedule developed by the Group Healthy Co-operative of Puget Sound (see Other Publications of Related Interest no.1) and adapted by the New Zealand Guidelines Group of the National Health Committee (see Other Publications of Related Interest no.2). Each study was graded using the U.S. Preventive Services Task Force protocol - (see Other Publications of Related Interest no.3). A single reviewer conducted the appraisal of the eligible studies.

Data extraction
Critical appraisal forms standardised by study design were used to extract the data. These forms were designed for use at Puget Sound, Seattle, USA (see Other Publications of Related Interest no.1) and adopted by the New Zealand Guidelines Group. Data extracted included reference details, study design and grade of evidence, mean age of the participants, sample size, length of follow-up and results. It was not stated how many reviewers were involved in this process. For individual studies, where possible, the results were presented as the absolute risk reduction (ARR). When ARR was determined and there was a significant difference resulting from the intervention, the number needed to treat (NNT) to prevent one case of the outcome under study was calculated. If the ARR could not be calculated from the available data, relative risk was used as the second summary statistic of choice. Odds ratios (ORs) were presented when the study was case control or a multiple regression method was used.

Methods of synthesis
How were the studies combined?
Studies were combined in a qualitative analysis.

How were differences between studies investigated?
No formal statistical test for heterogeneity was conducted.

Results of the review
Twenty-five studies (13 RCTs, 2 controlled trials, and 2 cohort studies) which included 2,880 patients and 702 carers. One meta-analysis was also included.

Early discharge:
Three RCTs evaluated the effectiveness of early discharge and did not find any significant difference in outcome between those discharged early compared with those in the 'conventional care' groups. These outcomes included mortality, readmission and rehabilitation based outcomes. In all cases those randomised to the early discharge group had significantly shorter lengths of stay. The studies had small sample sizes and lack of blinding was also considered a limitation.

Home-based versus hospital care:
Three RCTs compared home-based rehabilitation and hospital-based rehabilitation. Two RCTs using similar methodologies suggested there was no significant difference in outcome between the two trials. The results favoured the use of home-therapy. However, subgroup analysis of one study suggested the effectiveness of home-based services was dependent on patient characteristics. Therefore, the authors suggested a range of services should be maintained.

Community-based management:
Eight studies evaluated specific community-based interventions. Two RCTs evaluated occupational therapy services in the domiciliary setting found support for this intervention. Other programmes produced inconsistent results.

Day hospital rehabilitation:
A meta-analysis of day hospital rehabilitation also identified inconsistencies in the results between studies. Different
control groups used in the six studies included in this meta-analysis, further complicating the evaluation.

Impact on carers’ health:

Four studies (2 RCTs and 2 cohorts) assessed the impact specific interventions for stroke patients had on their carers’ health. Two studies did not identify significant difference in outcome. One study lacked generalisability since the intervention involved a single health worker. The other study identified a lower rate of severe depression in caregivers of patients living in areas with community-based support programmes.

Cost information
One included study conducted a cost comparison looking at early discharge and two studies (one cost comparison and one cost minimisation) investigated the cost-effectiveness of home-based versus hospital-based therapy. There was no significant difference found between groups with regards to early discharge. For home-based versus hospital-based rehabilitation, one study reported home physiotherapy to be more cost effective and one study reported that overall hospital-based group had 27% lower costs per patients but costs varied between different subgroup of patients.

Authors’ conclusions
Studies identified for critical appraisal had limitations that should be considered when interpreting the following conclusions:

1. There is currently insufficient evidence to suggest that early discharge from hospital after a stroke confers any advantage in terms of effectiveness or cost effectiveness compared with conventional care. A well designed study based in New Zealand setting using appropriate methodology is required in order to provide further evidence for change in current management of stroke patients in New Zealand.

2. A range of services should be maintained for the management of patients following a stroke. Home-based services do have a role to play in the rehabilitation of stroke patients.

3. Current evidence supported the use of domiciliary occupational therapy in patients following a stroke. However, further research assessing domiciliary occupational therapy in a RCT with observer blinded to the patient’s group would provide more robust data.

4. There was some evidence suggesting community support programmes reduced caregiver anxiety but further research is required to examine this issue in depth.

CRD commentary
The review includes a clear objective as well as a predefined inclusion/exclusion criteria. A thorough search of the literature was conducted, however, no attempt was made to locate unpublished studies and therefore the presence of publication bias cannot be ruled out. Information about the methodology of the review process was clearly presented and the validity of included studies was assessed. Relevant details of primary studies were presented in tabular format and as a narrative along with comments on the validity of each study. However, there seemed to be slight discrepancy between the information presented in the text with that presented in the tables regarding the number of included studies.

The authors’ conclusions do not appear to follow from the results presented with regards to the effectiveness of home-based management of stroke patients.

Implications of the review for practice and research
Practice: The author states that home-based services have a role to play in the rehabilitation of stroke patients and that a range of services should be maintained for the management of patients following a stroke.

Research: The author states that, with regard to early discharge, a well designed study based in a New Zealand setting
using appropriate methodology is required in order to provide further evidence for change in current management of stroke patients in New Zealand. The author also states that further research assessing domiciliary occupational therapy, in a RCT with observer blinded to the patient's group, is required as well as more studies investigating the effect of community support programmes in reducing caregiver anxiety.

**Funding**
Health Funding Authority; Ministry of Health.

**Bibliographic details**

**Original Paper URL**
http://nzhta.chmeds.ac.nz/publications/stroke.pdf

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by CRD

**MeSH**
Ambulatory Care; Cerebrovascular Disorders; Home Care Services; Rehabilitation

**AccessionNumber**
11999009288

**Date bibliographic record published**
30/11/2000

**Date abstract record published**
30/11/2000

**Record Status**
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.