

Specialist inpatient stroke unit care reduces mortality and institutionalisation compared with general medical ward care

Stroke Unit Trialists' Collaboration. A systematic review of specialist multidisciplinary team (stroke unit) care for stroke inpatients. The Cochrane Database of Systematic Reviews. 1995, Issue 1.

Objective

To compare specialist multidisciplinary team (stroke unit) care with routine care in general medical wards for inpatients with stroke.

Data Sources

Relevant trials were identified from the Cochrane Collaboration Stroke Review Group's Specialised Register of Controlled Trials. This register contains relevant randomised trials that have been identified by the systematic hand-searching of 21 core neurology and stroke journals, 5 Japanese journals that contain stroke-related trials, and the proceedings of 25 conferences related to stroke; regular searches of the Ottawa Stroke Trials Registry; systematic MEDLINE search from 1966 to 1994; review of the bibliographies of all identified

trials; systematic search of *Current Contents* from April 1994; systematic search of databases of dissertation abstracts; and conversation with colleagues and experts.

Study Selection

Studies were selected if they were randomised or quasi-randomised controlled trials comparing specialist inpatient stroke care with conventional general medical ward care in patients who had recently had a stroke (defined as focal neurological deficit caused by cerebrovascular disease excluding subarachnoid haemorrhage and subdural haematoma).

Data Extraction

Data were extracted pertaining to the selection criteria, methodological quality, and the 2 primary outcome measures: case fatality and need for institutional care. 2 investigators independently extracted data. The odds ratio (OR) and the absolute difference in odds were calculated. Mean length of stay in hospital or institution was also recorded.

Main Results

12 trials met the selection criteria and included a total of 1946 patients. The median follow-up was 12 months. Specialist inpatient stroke unit care was associated with an overall 23% reduction in the odds of death (OR, 0.77; 95% CI, 0.63 to 0.96; 2-tailed $P < 0.05$). The OR for death or institutionalisation was 0.66 (CI, 0.55 to 0.80; 2-tailed $P < 0.001$). These findings were not dependent on the details of the intervention, the timing of the outcome assessment, or the method of patient allocation. Mean lengths of stay in the hospital or institution were heterogeneous but did not show a longer length of stay in specialist stroke units.

Conclusion

Specialist inpatient stroke unit care reduces mortality and institutionalisation compared with routine care in general medical wards.

Source of funding: Chest, Heart and Stroke Scotland.

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Commentary

This meta-analysis is important for those who specialise in stroke care. It provides a basis for the notion that there is some value in designing various management systems and in dedicating a focused team effort to care for patients with stroke. It is important to recognise that the definition of a "multidisciplinary team with a special interest in stroke" was broad. Many of the studies were rehabilitation trials, whereas others focused more on acute stroke care. In recent years, stroke teams have begun to emphasise acute stroke care and to include newer treatment approaches and methods.

Although this meta-analysis provides convincing evidence that patients who receive special stroke team care are more likely to be alive and living at home 1 year after their strokes, evidence is insufficient to allow meaningful conclusions about the

differences related to specific management within stroke units, and differences related to intensive care unit measures as opposed to rehabilitation measures, careful attention to secondary complications of stroke (such as infection, pulmonary embolism, and dysphagia), or even less tangible factors (such as improved patient morale).

A dilemma of outcomes-based research is that, on one hand, outcomes such as case fatality are often chosen for reproducibility; on the other hand, more specific disability or qualitative outcome measures, including patient satisfaction indices, may also reflect pertinent contributions to helping patients lead more productive lives.

Although the authors report no apparent increase in hospital costs with care delivered by special stroke units, the evidence for this was indirectly based largely on the length of hospital stay. More

direct ascertainment of cost and cost-benefit implications is necessary.

The current evidence suggests that good reason supports the establishment of stroke teams. These teams provide not only better implementation of existing stroke therapies but also the organisation and expertise vital for the implementation and testing of newer, often more complex stroke therapies. Current data are insufficient to ascertain the best specific structure for the stroke team or the specific types of medical or rehabilitative care that are more effective or most cost-effective. These issues will need to be resolved in clinical trials.

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