Outcomes of elderly stroke patients: day hospital versus conventional medical management

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Day hospital facility (geriatric team).

Type of intervention
Rehabilitation.

Economic study type
cost-effectiveness analysis

Study population
Patients, 65 years of age and over, with a clinical diagnosis of cerebrovascular accident, without previous history of stroke or dementia and with a Barthel Index score less than 20.

Setting
District general hospital. The study was carried out in Hong Kong.

Dates to which data relate
The resource use and effectiveness data corresponded to patients admitted to hospital between December 1992 and October 1993. The price year was 1993.

Source of effectiveness data
The evidence/estimate for final outcomes was derived from a single study.

Link between effectiveness and cost data
Costing was undertaken prospectively on the same patient sample as that used in the effectiveness study.

Study sample
No power calculations were reported. One hundred and twenty elderly patients with the clinical diagnosis of cerebrovascular accident were randomised to inpatient care on a stroke ward under the care of either a neurologist (conventional, n=61) or a geriatric team (GDH, n=59). At baseline, fifty patients in the conventional and 49 patients in the GDH groups had a functional improvement Barthel Index (BI) score of ≤ 15, whilst 11 and 10 patients had a BI score between 16 to 19.

Study design
Randomised controlled trial. The study was carried out in a single centre. Patients, who were randomised by stratified
allocation into groups, were followed-up at 3 and 6 months.

**Analysis of effectiveness**

Analysis was presented for treatment completers only. At the three month follow-up 6 patients were lost in the conventional group and 9 patients in the GDH. At six month follow-up 17 and 16 patients were lost in the conventional and GDH groups, respectively. The primary health outcomes in the analysis were the functional ability as measured by the Barthel Index and consumer satisfaction of both the patient, and the care-givers, measured by a questionnaire. On entry into the study, the two treatment groups were comparable in terms of neurological deficits and bladder dysfunction as well as coexisting diseases, including those affecting the cardiovascular, respiratory, central nervous, musculoskeletal, endocrine, gastrointestinal, and other systems.

**Effectiveness results**

At baseline, mean BI of the conventional group was 10.4 (+/- 5.3) versus 9.9 (+/- 4.9) in the GDH group. At 3 months, mean BI was 14.6 (+/- 5.8) in the conventional group and 16.1 (+/- 3.9) in the GDH group. By 6 months, the scores were 15.6 (+/- 5.6) and 17.1 (+/- 3.6) for the conventional and GDH groups, respectively. There was no significant difference in overall mean BI scores between the two groups at each assessment. At 3 months, subgroup analysis of patients in group A (BI score of <=15 at baseline) showed a higher mean BI score in the GDH group compared with the conventional group (13.4 +/- 0.9 versus 15.7 +/- 0.6; p=.04). By 6 months, there was no significant difference in the number of cases in each BI category for the two treatment groups. No significant difference in patient and caregiver satisfaction was found between the two groups.

**Clinical conclusions**

Functional improvement, using the BI as a marker, occurred in both treatment groups. Although the final outcome appeared to be the same for both teams at 6 months, improvement was more marked in the group under the care of geriatricians at 3 months, particularly those with greater initial disability (subgroup A, with BI score of <=15 at baseline), while those managed by the medical team appeared to catch up in terms of progress between 3 to 6 months.

**Measure of benefits used in the economic analysis**

Outcomes in the analysis were the functional ability as measured by the Barthel Index and patient and caregiver satisfaction.

**Direct costs**

Quantities of resource use were reported separately from costs. Costs were derived from the local day hospital. Categories included in the analysis were: conventional group; total inpatient stay (acute+rehabilitation ward), outpatient clinic attendances, hospital readmissions; GDH group; total inpatient stay (acute+rehabilitation ward), GDH attendances, outpatient clinic attendances, hospital readmissions. Both quantities of resource use and costs were based on actual data and were collected over the period 1992 to 1993. The price year was 1993. Costs omitted from the analysis were those related to other agencies.

**Currency**

Hong Kong dollars ($).

**Sensitivity analysis**

Not performed.

**Estimated benefits used in the economic analysis**

At 3 months, patients in group A (BI score of <=15 at baseline) showed a significantly higher mean BI score in the
GDH group compared with the conventional group (13.4 +/- 0.9 versus 15.7 +/- 0.6; P=.04). By 6 months, there was no significant difference in the number of cases in each BI category for the two treatment groups. No significant difference in patient and caregiver satisfaction was found between the two groups.

Cost results
At 3 months, the mean cost per course of treatment for the GDH group was $53,891 (+/- $28,835) versus $44,960 (+/- $17,954) for the conventional group (p = 0.055). At 6 months, the corresponding figures were $58,168 (+/- $25,898) and $51,809 (+/- $30,480) respectively (p = 0.29).

Synthesis of costs and benefits
Not combined since the intervention was the dominant strategy.

Authors’ conclusions
Compared with conventional medical management, a geriatric team approach with a day hospital facility hastened functional recovery, as measured by the BI, in a group of elderly patients with cerebrovascular accidents, without significant additional cost. General well-being and consumer satisfaction appeared to be similar in the two groups at 3 and 6 months, while the day hospital group had significantly fewer outpatient visits at 6 months.

CRD COMMENTARY - Selection of comparators
The reason for the choice of comparator used in the study is clear.

Validity of estimate of measure of benefit
The internal validity of the results from the effectiveness analysis is in question due to the limitations reported by the authors. Firstly, the length of follow-up may have been too short to demonstrate true differences in patient self-perceived well being. Secondly, the limitations of the questionnaire design may have precluded the detection of small differences between groups, given the numbers of the study (although no power calculations were reported).

Validity of estimate of costs
The cost analysis omitted those costs associated with social services (other agencies) used by the treatment groups.

Other issues
Until the alternative strategy of domiciliary services becomes available in Hong Kong the chosen comparator may be considered relevant for carrying out an economic evaluation of day hospital managed by a geriatric team. Due to this, the results of the study cannot be compared directly with the corresponding studies published in western industrialized countries.

Implications of the study
The results of this analysis, confirming the findings of previous studies, have profound implications for the rehabilitation management of elderly stroke patients and suggests that individuals should be treated in a geriatric day hospital vis a vis conventional medical management. However, geriatricians must keep in mind cost differentials in varying locations before extrapolating the results to their domestic setting.

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