A multifactorial intervention to reduce the risk of falling among elderly people living in the community


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
Exercise and behavioural modification for the prevention of falls. Specifically: ankle pumps, hand clenching to reduce postural hypotension, education with respect to sedative-hypnotic agents, training in transfer skills (e.g. getting out of the bath), removal of hazards, gait training, balance exercises, resistance exercises.

Type of intervention
Primary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
Elderly men and women (>70 years) having one or more risk factors for falling.

Setting
Community (also relevant for primary care). The economic study was carried out in Southern Connecticut in the USA.

Dates to which data relate
Effectiveness data were collected during the period 1990-1993. No other dates were given.

Source of effectiveness data
Single study.

Link between effectiveness and cost data
Cost data were collected as part of the trial. It is not clear if this was done prospectively or retrospectively.

Study sample
There were no a priori power calculations to set the sample size. Sample selection was to recruit all eligible patients within an HMO who fitted the study inclusion criteria. Sixteen physicians agreed to participate, equally allocated to the intervention and comparator groups. Enrolled subjects were assigned to the same study group as their physician. Of 2522 enrollees, 2229 subjects were randomly selected, 1950 agreed to be screened for trial eligibility, 355 were eligible, 301 agreed to participate, of which 153 and 148 subjects were assigned to the intervention and comparator groups respectively. Eligibility criteria included: ambulation, residence outside a nursing home, non-participation in any other trial, high score on a mental examination, no participation in vigorous sports or exercise one month previously and had at least one fall risk factor.
Study design
Randomised controlled trial. Duration of follow-up was one year. The unit of randomisation was by clinician. They were frequency matched into four groups on the basis of a few measures. Two physician in each group of four were randomly assigned to the control group and two to the intervention group. Baseline assessment and ascertainment of falls was conducted by an interviewer blinded to intervention assignment. There were ten losses to follow-up (six and four in intervention and comparator group respectively).

Analysis of effectiveness
Analysis of treatment completers. Outcome was the incidence of falls. Groups were reported as comparable in age, sex, and clinical features.

Effectiveness results
A reduction in falling by 12% (p = 0.04) was reported in the intervention group. Adjusted incidence rate ratio for falling was 0.69 (95% CI 0.52 to 0.90).

Clinical conclusions
Falling can be reduced in a multiple risk factor intervention, furthermore, the numbers of risk factors themselves decline amongst the intervention groups.

Measure of benefits used in the economic analysis
Falls averted

Direct costs
Only health service costs were included for development, equipment, personnel, travel and overhead costs. Other details were not given.

Currency
US dollars

Sensitivity analysis
Not undertaken.

Estimated benefits used in the economic analysis
Seventy falls were prevented, of which eleven required medical care.

Cost results
Total costs were $136,318 or $891 per person in the intervention group.

Synthesis of costs and benefits
The cost per fall averted was $1,947 and $12,392 for falls requiring medical attention.

Authors’ conclusions
The cost of averting a fall that came to medical attention ($12,392) compared favourably with the average medical
treatment costs of $11,800 per hospitalization for injuries caused by falls among elderly.

**CRD Commentary**

There are major concerns with respect to the generalisability of the study (only 12% of the population were recruited) and costs. As the costs were not described in detail, the economic evaluation cannot be well appraised. Also the comparison of the average treatment costs of falls requiring medical attention with the costs of the programme was misleading. This was because those patients that are likely to have a lot of co-morbidity were excluded from the study, and these patients are the ones likely to be expensive in terms of treatment, if they fall. In contrast, the patients in this study may not have required as expensive treatment if they did fall. In addition, the lower 95% CI of fall reduction was close to 1, therefore, had the authors done a sensitivity analysis of their results using this CI as the true estimate of effectiveness the CE ratio would have been substantially increased.

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