Treatment and prevention of depression after surgery for hip fracture in older people: cost-effectiveness analysis


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.

CRD summary
This study examined the cost-effectiveness of both a nurse-led intervention to treat depression and a cognitive behavioural therapy (CBT) to prevent depression, in older people who had undergone hip fracture surgery. The authors concluded that the nurse-led intervention was cost-effective for treating depression, while CBT did not provide value-for-money for the prevention of depression in this population. The study was based on valid and transparent methods that ensure the reliability of the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study examined the cost-effectiveness of both a nurse-led intervention for treating depression and cognitive behavioural therapy (CBT) for preventing depression, in older people who had undergone surgery for a hip fracture.

Interventions
The nurse-led intervention for patients with depression was a structured psychiatric intervention, where patients received weekly sessions lasting one hour with a psychiatric nurse for the first three months and weekly follow-up sessions with the nurse for a further three months.

The CBT for the prevention of depression consisted of six sessions of therapy, administered by an assistant psychologist, according to a treatment manual.

Both interventions were compared against usual care.

Location/setting
UK/hospital.

Methods
Analytical approach:
The analysis was based on a single trial, with two sections run in tandem and a six-week time horizon. The authors stated that the analysis was carried out from the perspective of health, social, and voluntary care agencies and unpaid carers.

Effectiveness data:
The clinical data were from a published randomised controlled trial, carried out at four orthopaedic units (Burns, et al. 2007, see 'Other Publications of Related Interest' below for bibliographic details). Patients who scored seven or more on the Geriatric Depression Scale (GDS) were randomised to either the nurse-led intervention or usual care. Patients who scored six or less were randomised to either CBT or usual care. These two randomised parallel-group trials were carried out in tandem. Of the 1,108 patients assessed for eligibility, 121 were included in the treatment study (60 in the intervention group and 61 in the usual care group) and 170 in the prevention study (85 in the CBT group and 85 in the usual care group). The reasons for exclusion were reported. The length of follow-up was six months, with assessment points at six weeks, three months, and six months. The primary endpoint was the change in the depression subscale of
the Hospital Anxiety and Depression Scale (HADS) at six weeks.

Monetary benefit and utility valuations:
Not considered.

Measure of benefit:
The benefit measure was the change in the score on the depression subscale of the HADS and this was derived directly from the clinical trial.

Cost data:
The economic analysis included the costs of in-patient stay, out-patient visits, day hospital treatment, visits to social clubs, meals at lunch clubs, day care visits, voluntary care, unpaid care, and hours spent in contact with community-based professionals, such as community teams for older people, community psychologists, community psychiatrists, general practitioners, nurses, social workers, occupational therapists, paid home help or care workers, and physiotherapists. The costs of the treatment and prevention consisted of the sessions with the professionals. The resource use data were from the two parallel clinical trials and a bootstrapping approach was used as the cost data were highly skewed. The unit costs were based on the official tariffs of the Unit Costs of Health and Social Care and the National Health Service Schedule of Reference Costs from the Department of Health. All costs were in UK pounds sterling (£) for the fiscal year 2005 to 2006.

Analysis of uncertainty:
Bootstrapping was used to estimate the mean costs and benefits and to generate incremental cost-effectiveness ratios (ICERs) and cost-effectiveness acceptability curves for different values of incremental benefits.

Results
Over six weeks of treatment, the mean cost per patient was £5,530 (SD 519) with the intervention and £5,732 (SD 521) with usual care. The mean HADS depression subscale score was 5.7 (SD 3.7) with the intervention and 7.8 (SD 4.4) with usual care. The cost difference was not statistically significant, while the benefit was statistically greater in the intervention group. The incremental cost per unit improvement in HADS depression subscale score was £96. At a willingness-to-pay of £150 for 1.5 points improvement in depression score (a clinically relevant improvement), there was 80% probability that the nurse-led intervention would be cost-effective.

Over six weeks of prevention, there were no statistically significant differences between CBT and usual care in both costs and benefits. The mean cost per patient was £4,697 (SD 2,955) with CBT and £4,877 (SD 3,467) with usual care. The mean HADS depression score was 3.8 (SD 0.4) with CBT and 3.9 (SD 3.7) with usual care. The incremental cost per unit improvement was £1,800. At a willingness-to-pay of £1,500 for a clinically relevant improvement, there was 37% probability that CBT would be cost-effective.

Authors’ conclusions
The authors concluded that after hip fracture surgery, the nurse-led intervention was cost-effective for treating depression, while CBT did not provide value-for-money for the prevention of depression.

CRD commentary
Interventions:
The reason for the selection of the comparators was clear as the interventions were appropriately compared against the conventional approach in the authors’ setting.

Effectiveness/benefits:
The clinical data were from well-conducted and methodologically valid studies; clinical trials are considered to be robust sources of evidence. The study groups were comparable at baseline in their clinical and depression-related characteristics. Randomisation was performed by an independent third party, using a computer-generated randomisation procedure, to ensure allocation concealment. Statistical tests were carried out to examine the potential impact of confounding factors. These factors enhance the validity of the data. The benefit measure was of clear clinical relevance, but could be difficult to compare with the benefits of other health care interventions.
Costs:
The economic analysis was well carried out. The cost categories and their sources were consistent with the perspective stated, but the unit costs and resource quantities were not reported separately. The patterns of resource consumption reflected the actual use of health services in the clinical trial. The unit costs were from official tariffs, which were relevant for the UK health system. The price year was reported, allowing reflation exercises for other time periods.

Analysis and results:
The expected costs and benefits of the interventions were clearly reported. The approaches used to synthesise the costs and benefits (incremental ratios and net benefit) appear to have been valid. The issue of uncertainty was investigated, using a comprehensive approach that considered the simultaneous variability in clinical inputs. The results of the bootstrap analysis were clearly discussed and presented in graphs. The authors justified their selection of a six-week time horizon, as this was the appropriate follow-up to capture the effect of the interventions. They acknowledged that the use of alternative outcome measures, such as quality-adjusted life-years, would have been more appropriate.

Concluding remarks:
The study was based on valid and transparent methods and the authors’ conclusions are robust.

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