Does preoperative hip rehabilitation advice improve recovery and patient satisfaction

McGregor A H, Rylands H, Owen A, Dore C J, Hughes S P

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
The health technology studied was preoperative rehabilitation advice, reinforced by an information booklet, for patients undergoing total hip arthroplasty (THA). Preoperative advice was compared with the standard pathway of care.

Type of intervention
Rehabilitation.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients undergoing THA at the Charing Cross Hospital, London, UK. Patients were excluded if they presented with revision arthroplasty or bilateral arthroplasty, previous hip joint arthroplasty, or coexisting morbidity (history of severe cardiovascular, respiratory, neuromuscular disease, or rheumatoid arthritis). They were also excluded if they presented with mental confusion, or an inadequate comprehension of English.

Setting
The practice setting was secondary care. The economic study was carried out in the Department of Musculoskeletal Medicine, Charing Cross Hospital, London, UK.

Dates to which data relate
The dates to which the effectiveness and resource use data related were not reported. The price year was not reported.

Source of effectiveness data
The effectiveness data were derived from a single study.

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

Study sample
The study did not report any power calculations to determine the sample size. Individuals were eligible for inclusion in the analysis if they were patients undergoing THA at the authors’ institution who had consented to participate in the trial. Thirty-five patients (10 men and 25 women) with a mean age of 71.9 years (standard deviation, SD=9.3) were recruited into the study. Of these, 19 were randomly allocated to the intervention group (mean age 70.8 years, SD=9.3) and 20 to the control group (mean age 72.8 years , SD=10.1). The mean duration of symptoms in all selected patients was 40 months (SD=40.3) and they spent, on average, 10.9 months (SD=12.1) on the waiting list. The authors did not
report whether any patients invited to participate in the study refused, or the number of patients excluded from the initial sample.

**Study design**
This was a single-centred, randomised controlled trial in which the patients were randomly stratified by age. The patients were assessed pre-admission, on admission to the hospital, before discharge from the hospital, and 3 months postoperatively. Four patients in the intervention group were lost to follow-up. The authors did not report any blinding method for the outcome assessment.

**Analysis of effectiveness**
The authors did not state whether the analysis of the clinical trial was conducted on an intention to treat basis, or on treatment completers only. They collected data on pre-admission expectations, postoperative satisfaction with surgery, clinical function, psychological condition and health-related quality of life. The three scales used to collect data on clinical function were the Western Ontario and McMaster Universities (WOMAC) index, the Harris Hip Score, and the Bartel Activities of Daily Living Index. The three questionnaires used to assess psychological condition were the Positive Affect Negative Affect Scale, the helplessness short sub-scale of the Rheumatology Attitudes Index, and the Cantril Life Satisfaction Ladder. Visual analogue scales were used to assess pain, fatigue, preoperative expectations of postoperative pain, function, and anticipated satisfaction. The EuroQol EQ-5D was used to value the health-related quality of life in both groups. The two groups appear to have been comparable in terms of age and mean duration of symptoms. No adjustments for confounding factors were made.

**Effectiveness results**
The intervention group patients reported higher levels of satisfaction than the control group patients, both at discharge and at the 3-month postoperative review, (p<0.01).

At the 3-month review, the actual satisfaction of patients in the intervention group was greater than expected, whereas the actual satisfaction of patients in the control group was less than expected, (p<0.05).

The Bartel Index improved slightly more with time in older patients in the intervention group compared with the control group, (p<0.005).

The pain visual analogue scales improved with time in both groups, (p<0.001).

The WOMAC scores for pain, stiffness and function showed significant improvement with time in all patients, (p<0.001).

The Harris Hip score improved with time in both groups, and was inversely related to age, (p<0.001).

All patients changed towards a positive mood and less helplessness, (p>0.05), and became less fatigued and slightly more satisfied with time, (p<0.001).

All patients above 70 years of age displayed more helplessness, (p<0.05).

The health-related quality of life of all patients increased significantly with time, (p<0.001).

**Clinical conclusions**
All patients showed increases in function and psychological variables with time. The intervention group reported higher levels of satisfaction and had more realistic expectations of surgery.

**Measure of benefits used in the economic analysis**
No summary measure of benefit was used in the economic analysis. In effect, a cost-consequences analysis was
performed.

**Direct costs**
The direct costs of the health service were included in the analysis. The direct costs reported were the costs of preoperative advice and booklet, hospital stay, inpatient physiotherapy and occupational therapy, outpatient costs, visits to the general practitioner, and the use of community or outpatient therapy. The costs of equipment, medication, surgical procedure and support from the surgical team were assumed to be similar in the two groups. The quantities and the costs were not reported separately. The resource use data were obtained from the clinical study, whereas the unit costs were not reported. The price year was not reported.

**Statistical analysis of costs**
No statistical analyses of the costs were reported.

**Indirect Costs**
No indirect costs were included in the analysis.

**Currency**
UK pounds sterling (£) and US dollars ($). The authors did not report the conversion rate.

**Sensitivity analysis**
The authors did not report any sensitivity analysis in the study.

**Estimated benefits used in the economic analysis**
See the 'Effectiveness Results' section.

**Cost results**
The total average cost of care was 2,842 (approximately $4,000) for patients in the intervention group and 3,429 (approximately $4,800) for patients in the control group.

**Synthesis of costs and benefits**
The costs and benefits were not combined as, in effect, a cost-consequences analysis was performed.

**Authors' conclusions**
The study showed that, compared with standard care, the preoperative rehabilitation advice and booklet approach improves patient expectations and satisfaction levels, and reduces the costs of treatment.

**CRD COMMENTARY - Selection of comparators**
A justification was given for the comparator used, it represented standard care. You should decide if this represents a widely used health technology in your own setting.

**Validity of estimate of measure of effectiveness**
The analysis was based on a randomised controlled trial, which was appropriate for the question and is considered the best study design. The authors did not report any information that would enable one to assess how representative the study sample was of the study population. No power calculations were reported and, as such, it is not possible to
determine whether the results were due to chance, or to a lack of power to detect significant differences in the strategies. In addition, the study sample was small and no adjustments for confounding variables were performed. The authors acknowledged that this was a limitation of their study. The authors did not report whether the analysis was conducted on an intention to treat basis, or the dates defining the periods of recruitment and follow-up. Given these limitations, it is difficult to judge the reliability or relevance of the findings.

Validity of estimate of measure of benefit
No summary measure of health benefit was used. The reader is therefore referred to the comments above in the “Validity of estimate of measure of effectiveness” field.

Validity of estimate of costs
The study perspective was that of the NHS and, as such, all the categories of cost relevant to that perspective were included in the analysis. The costs and the quantities were not reported separately, which presents limitations in terms of the generalisability of the results. Some relevant costs were omitted from the analysis. The cost of surgical procedure and support from the surgical team, together with the costs of equipment and medication, were not included because they were assumed to be similar between the two groups. However, no statistical analyses of the quantities and prices were reported. The conversion rate from UK pounds sterling to US dollars was not reported. In addition, the price year was not reported which will make reflation exercises difficult.

Other issues
The authors made appropriate comparisons with other studies and found their results to be consistent with the findings of these studies. The issue of the generalisability to other settings was not addressed. The authors appear to have presented their results selectively, although this may have been because of reporting restrictions. In addition, they acknowledged several limitations in their study. For example, the study sample was small and confounding variables were not included in the analysis.

Implications of the study
The authors suggested that the preoperative educational programme had a positive impact on the costs of treatment, and that the preoperative booklet could be more effective if reinforced verbally. However, a larger study sample is needed to assess any significant functional or psychological improvements due to the educational programme, compared with standard care.

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