

Displaced intracapsular hip fractures in fit, older people: a randomised comparison of reduction and fixation, bipolar hemiarthroplasty and total hip arthroplasty

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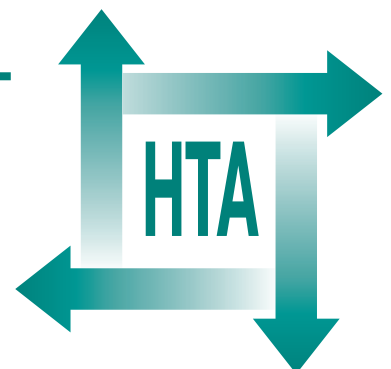
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Executive summary

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Executive summary

Objective

The aim was to compare internal fixation, bipolar hemiarthroplasty and total hip arthroplasty for the management of displaced subcapital fracture of the hip in previously fit patients of 60 years or older.

Methods

Study design

The study was a prospective randomised clinical trial.

Setting

This multicentre trial was carried out in 11 Scottish hospitals with acute orthopaedic trauma units. The study involved five university teaching hospitals and six affiliated district general hospitals.

Subjects

The participants were 298 previously fit patients of 60 years or older with displaced subcapital hip fractures.

Interventions

The three surgical interventions for comparison were reduction and fixation, bipolar hemiarthroplasty and total arthroplasty (total hip replacement). Participating surgeons elected to randomise patients either among all three types of operation (three-way randomisation) or just between fixation and hemiarthroplasty (two-way randomisation).

Main outcome measures

Patients were followed up for 2 years. Clinical outcomes were mortality rates, reoperation rates and the complication rates associated with each procedure. Functional outcome was measured using a hip specific questionnaire [Johanson Hip Rating Questionnaire (HRQ)] and a general health status questionnaire [EuroQol 5 Dimensions (EQ-5D)]. Economic analysis compared the costs in the randomised groups of hospital treatment for the initial and subsequent admissions for up to 2 years.

Results

Altogether, 207 patients were randomised among all three trial operations, and 91 between just fixation and bipolar hemiarthroplasty. There were no statistically significant differences in clinical outcomes, but confidence intervals (CIs) were wide. At 2 years fixation failure reached 37% among those allocated fixation and 39% had undergone further surgery. Further surgery rates after hemiarthroplasty and total hip replacement were 5% and 9%, respectively.

The group allocated fixation had significantly worse HRQ and EQ-5D scores than both arthroplasty groups at 4 and 12 months. At 24 months the results still favoured arthroplasty, but the overall HRQ and EQ-5D scores were no longer statistically significant. Total hip replacement had the best patient-assessed outcome scores. At 24 months the overall HRQ and EQ-5D scores for total hip replacement were significantly better than for hemiarthroplasty.

The mean costs for the initial episode ranged from £6384 for fixation to £7633 for total hip replacement. The cost differences were largely due to differences in theatre costs and the cost of prostheses and hardware. The cumulative cost over 2 years of hemiarthroplasty was around £3000 lower than for fixation (95% CI £1227 to £7192). Compared with total hip replacement, both fixation and hemiarthroplasty were characterised by increased costs arising from hip-replacement admissions. When total (initial episode and subsequent hip-related admissions) hip-related costs are compared, total hip replacement conferred a cost advantage of around £3000 per patient (versus hemiarthroplasty, 95% CI -£1400 to £7420).

Conclusions

In fit, older patients the results of the study show a clear advantage for arthroplasty over fixation; arthroplasty was more clinically effective and probably less costly over a 2-year period

postsurgery. The results suggest that total hip replacement has long-term advantages over bipolar hemiarthroplasty, but these findings are less definite.

Recommendations for research

This study provided support for the use of total hip replacement to treat displaced intracapsular hip fractures in fit, older patients. Although the total hip replacement group had a better functional and economic outcome than the hemiarthroplasty group, a larger trial comparing total versus hemiarthroplasty for these fractures could help to verify these findings. It would also

be useful to know whether the findings of this study apply to patients ≤ 60 years who are usually treated with reduction and fixation. A clinical trial comparing arthroplasty versus fixation in patients >40 years would be a logical extension of the current study.

Publication

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NHS R&D HTA Programme

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The research reported in this monograph was commissioned by the HTA Programme as project number 94/24/03. The contractual start date was in June 1996. The draft report began editorial review in March 2003 and was accepted for publication in August 2004. As the funder, by devising a commissioning brief, the HTA Programme specified the research question and study design. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the referees for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

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