One- or two-stage bilateral metal-on-metal hip resurfacing arthroplasty

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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.

CRD summary
This study compared the effectiveness and costs of one-stage versus two-stage bilateral total hip resurfacing for the treatment of patients, with bilateral symptomatic disease, who were eligible for metal-on-metal hip resurfacing. The authors concluded that one-stage surgery was the preferred option. However, the study was characterised by a number of methodological weaknesses and the authors’ conclusions should be treated with some caution.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study compared the costs and effectiveness of two surgical treatments for the management of patients suffering from bilateral disease and who were eligible for metal-on-metal hip resurfacing.

Interventions
The procedures compared were one-stage bilateral total hip resurfacing and two-stage bilateral total hip resurfacing.

Location/setting
UK/secondary care.

Methods
Analytical approach:
The effectiveness data were collected from a clinical database in the authors’ setting. The patients were followed up at six weeks, six months, and then annually after the procedure. No study perspective was stated by the authors.

Effectiveness data:
The analysis was based on a single-centre retrospective cohort study and the effectiveness data were derived from a clinical data set in the authors’ setting. The patients were grouped based on the surgical procedures that they underwent. No patients were reported to have refused access to their data, and no patients were excluded from the analysis. The sample included 37 patients in the one-stage bilateral hip resurfacing group and 55 patients in the two-stage group. The two groups were reported to have been comparable in terms of their baseline characteristics. The primary outcomes included peri- and post-operative complications, number of transfusions, and length of hospital stay. In addition, the outcomes of the procedures were assessed using the Oxford hip score.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The authors did not derive a summary measure of benefit. Therefore, a cost-consequences analysis was performed.

Cost data:
The cost categories included the reimbursable treatment cost for adequate in-patient and follow-up out-patient care. The currency was UK pounds sterling (£). All cost estimates were based on actual reimbursement costs, were obtained from official national sources, and were reported for the price year of 2006.

Analysis of uncertainty:
No sensitivity analysis was conducted.

**Results**
The complication and transfusion rates were not significantly different between the two groups.

The mean total length of stay was shorter by five days in the one-stage group and this difference was statistically significant (95% confidence interval, CI: 4.0 to 6.9 days, \( p<0.001 \)).

For the one-stage group, compared with a subset (31 patients) of the two-stage group, who were eligible for the one-stage procedure, there was a reduced length of time to completion of all surgery of five months (95% CI: 2.6 to 8.3; \( p<0.001 \)).

The mean treatment costs per patient were £6,338 for the one-stage group and £9,726 (range: £9,380, £11,746) for the two-stage group.

**Authors’ conclusions**
The authors concluded that, compared with the two-stage procedure, one-stage bilateral total hip resurfacing was the preferred option for patients, with bilateral symptomatic disease, who were eligible for metal-on-metal hip resurfacing.

**CRD commentary**
**Interventions:**
The interventions were reported in detail. However, it was not clear whether the study was thorough in its coverage of all the alternative interventions.

**Effectiveness/benefits:**
The effectiveness data were based on a single-centre retrospective cohort study and were derived from patient medical records. No power calculations, which determine the adequate sample size, were reported. However, a statistical analysis was undertaken to account for the potential confounding factors. The authors provided details on the study sample, which allows the readers to compare their own patients with those in the study. The authors acknowledged that the retrospective nature of their study limited its internal validity.

**Costs:**
Although the perspective was not stated, the costs appear to suggest that the perspective was that of the health care system. However, the cost analysis was not adequately reported and no sensitivity analysis was conducted to assess whether the results were robust. These factors limit the generalisability of the results.

**Analysis and results:**
The economic analysis was not reported in detail and the costs and quantities were not reported separately. The costs and benefits were not combined, which makes the study a cost-consequences analysis. The authors reported a few limitations to their study.

**Concluding remarks:**
The analysis was characterised by several methodological limitations, and the authors’ conclusions should be treated with some caution.

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