



Title Minimally Invasive Arthroplasty in the Management of Hip Arthritic Disease: Systematic Review and Economic Evaluation

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Aim

To examine the impact of adopting minimally invasive total hip replacement (MI THR) into the Canadian health system.

Conclusions and results

MI THR techniques may have some perioperative advantages (less blood loss and shorter operative time), although these may be of limited clinical significance. Of particular concern is the absence of evidence on the rates of revision after a primary procedure. Single-incision techniques are associated with higher costs (20 400 versus 19 100 Canadian dollars (CAD)) and quality-adjusted life-years (7.48 versus 7.47) compared to standard THR, resulting in an incremental cost per QALY gained of CAD 148 300. The probability that MI THR is more cost effective than standard THR for a decision maker willing to pay CAD 50 000 for a QALY is 47%. These results are most sensitive to the cost of initial hospitalization and patient utility values in the first year post-treatment. Compared to expanding funding for single-incision MI THR, it would be cost effective to spend up to CAD 480M on gathering additional data through field evaluation, to remove uncertainty regarding the effect of MI THRs on revision rates.

Recommendations

None given

Methods

A comprehensive literature search was conducted involving electronic databases, relevant websites, contact with experts in the field, and the scrutiny of retrieved papers to identify reports of published and ongoing studies. Systematic reviews and selected conference proceedings were also searched. The clinical review adopted the same methods as those in the National Institute for Health Research (NIHR) health technology assessment (HTA) report. A systematic review of economic evaluations was performed, comparing the minimally

invasive approach to standard THR. A Markov simulation model was created to estimate long-term costs and quality-adjusted life-years (QALYs) for patients undergoing standard THR and MI THR.

Further research/reviews required

More long-term, high-quality studies are needed.