

Lower limb arthroplasty: can we produce a tool to predict outcome and failure, and is it cost-effective? An epidemiological study

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Plain English summary

Lower limb arthroplasty

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Plain English summary

In this project we collected data on the number of hip and knee replacements across the UK. To help health-care planning, we have estimated the rapidly growing demand for hip and knee replacements. We also investigated patient outcomes and developed a new way of measuring the success of surgery for individual patients. We identified the factors that predict poor results of knee and hip replacements, postoperative complications and the need for further surgery. We have found that patients who have severe pain and poorer joint function before surgery experience more unsatisfactory outcomes after operation. Poor surgery outcomes were associated with older age, deprived socioeconomic background and poor mental health. Although the association between increased weight and poor outcomes was weak, we found that overweight patients are more likely to need revision surgery.

We combined risk factors and designed statistical tools separately for hip and knee to identify patients likely to have unsatisfactory outcomes. We then tested the tools for practicality in two NHS trusts, in Oxford and Southampton. Although the predictive tools slightly underperformed, inclusion of additional risk factors in the tools improved their performance. Better results would be likely if we used a wider spectrum of risk factors.

Economically, hip and knee replacements are, in general, undoubtedly cost-effective in improving the long-term quality of patients' lives. It is important, therefore, that any measure that directs patients away from surgery because of likely poor outcomes is accurate and offers good alternatives. Further work is in progress to help both patients and their doctors make reliable decisions about future treatment in individual cases.

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