

CLAHRCBITE

Brokering Innovation Through Evidence

What is the impact of comorbidities on outcomes of hip and knee replacement surgery? A review of the evidence



Hip and knee replacement surgery, the surgical replacement of a joint, is one of the most successful and cost-effective interventions in medicine. It offers considerable improvement in function and quality of life.

Comorbid conditions, conditions that are present in addition to the main condition being treated by surgery (index condition) but are unrelated to the latter, are on the rise around the world as more people are living with multiple morbidities (e.g. diabetes, heart disease). As the prevalence of people living with multiple morbidities increases with age, it is expected that the number of patients undergoing elective hip and knee replacement with at least one comorbid condition will increase.

There have been a number of studies reporting the impact of comorbidity on outcomes after hip and knee replacement. There is little evidence, however, to

which extent different individual comorbid conditions affect a variety of outcomes that relate not just to the safety of the surgery but also long-term outcomes such as quality of life after hip and knee replacement surgery.

What was the aim of the project?

This project is aiming to understand what evidence exists on the impact of different comorbid conditions on;

- the short-term outcomes relating to the safety of the hip or knee replacement surgery
- and the long-term outcomes relating to the benefits of undergoing hip and knee replacement surgery.

What we did

We undertook a systematic search of the literature to identify studies that reported data for the impact of 11 comorbid conditions on 10 outcomes after surgery (including surgical complications, readmissions, mortality, function, quality of life, pain and revision surgery). The quality of included studies was assessed and we took a statistical approach to combine the results from multiple studies (meta-analysis).

What we found

We review 70 eligible studies with only 9 (13%) being of high quality. Together these 70 studies showed:

- Comorbidities increased the short-term risk of hospital readmissions (8 of 11 conditions) and mortality (8 of 11 conditions) but the impact on surgical complications was inconsistent across comorbid conditions.
- In the long term, comorbid conditions increased the risk of revision surgery (6 of 11 conditions) and long-term mortality (7 of 11 conditions) but the impact on outcomes relating to effectiveness such as function, quality of life and pain varied significantly.

Recommendations

This review of current evidence shows that comorbidities predominantly impact the safety of hip and knee replacement surgery but have little impact on its effectiveness. This suggests that clinicians should consider the short-term risks relating to the safety of the surgery in their management of patients with comorbid conditions. However there is little evidence that patients with comorbid conditions benefit significantly less from hip and knee replacement in terms of quality of life, function and pain after surgery than patients without comorbid conditions.

What next?

While this study has demonstrated that the impact of comorbidities on short-term and long-term outcomes after hip and knee replacement surgery, future research is needed that considers the severity of comorbid conditions to better understand the impact of comorbid conditions on outcomes.

Find out more

Podmore B, Hutchings A, van der Meulen J, et al **Impact of comorbid conditions on outcomes of hip and knee replacement surgery: a systematic review and meta-analysis**

BMJ Open 2018; 8: e021784. doi: 10.1136/

bmjopen-2018021784

<https://bmjopen.bmj.com/content/8/7/e021784>

Further reading

How does having a long-term condition impact on access to and outcomes of hip and knee replacement surgery?

https://clahrc-norththames.nihr.ac.uk/methods_theme/long-term-condition-hip-knee-replacement

Many CCGs are ignoring clinical evidence in their surgical commissioning policies

Royal College of Surgeons press release, July 14 2014
www.rcseng.ac.uk/news-and-events/media-centre/press-releases/many-ccgs-are-ignoring-clinical-evidence-in-their-surgical-commissioning-policies