

Bariatric surgery before knee replacement cost-effective in improving outcomes in obese patients

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Obesity is not only a risk factor for developing knee arthritis. It is also linked to less favorable outcomes after joint replacement surgery. A study at Hospital for Special Surgery (HSS) in New York City finds that bariatric surgery prior to total knee replacement (TKR) is a cost-effective option to improve outcomes. The research appeared in the January issue of *The Journal of Bone & Joint Surgery*.

It is well known that [obesity](#) takes a toll on one's health. Bariatric surgery and subsequent weight loss reduce the risk of heart disease, diabetes and some forms of cancer. "We know that [bariatric surgery](#) is a cost-effective intervention for morbid obesity," said Alexander McLawhorn, MD, MBA, lead investigator. "Yet, the cost-effectiveness of bariatric surgery to achieve weight loss prior to joint replacement and thus decrease the associated complications and costs in severely obese patients was unknown."

Investigators used a sophisticated computer software program to answer that question. The computer model compared the cost-utility of two treatment protocols for patients who were morbidly obese and had advanced knee osteoarthritis. One group had joint replacement immediately, without losing weight. The other group had knee replacement two years after bariatric surgery and subsequent weight loss.

"For the study, we chose a decision analysis design because we could use a mathematical model to simulate the outcomes and costs of each treatment path based on results and costs that have already been published in the literature," Dr. McLawhorn explained.

In the study, patients had a BMI of at least 35. (Normal BMI is 18.5 to 24.9). For study purposes, researchers assumed that at least one-third of the patients having bariatric surgery lost their excess weight before knee replacement.

The computer model predicted that the patients who had bariatric surgery two years prior to TKR were more likely to enjoy improved quality of life, measured in quality-adjusted life years (QALYs), compared to patients undergoing TKR without prior weight loss surgery. In addition, the cost necessary for this level of improvement was \$13,910 per QALY, which is below the amount society and health care payers, such as insurance companies and the government, are typically willing to pay.

"The computer model supports bariatric surgery prior to [total knee replacement](#) as a cost-effective option for improving outcomes in morbidly obese patients with end-stage knee osteoarthritis," Dr. McLawhorn said.

However, he notes that for some patients experiencing severe knee pain, it may be impractical to hold off on joint replacement. Sometimes an orthopedic surgeon is the first doctor a patient sees for arthritis pain, and individual patient preferences for treatment should be taken into account.

Another important consideration is the nutritional assessment for patients scheduled for orthopedic surgery, especially those who have had bariatric surgery, according to Dr. McLawhorn. Any nutritional

deficiencies need to be addressed prior to joint replacement.

"Ideally, a team approach should be used to treat severely obese patients with [knee arthritis](#) in which various health care professionals are in place to help a patient lose weight, improve his or her health, and optimize nutrition before joint replacement to maximize its benefits," he said.

"The results of our study may help physicians when counseling patients and developing an individualized treatment plan that includes optimization of overall health, nutrition and weight prior to knee replacement," said Dr. McLawhorn.

Provided by Hospital for Special Surgery

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