Hip Replacement Worth the Cost, Says Study

Kathleen Louden

Mar 28, 2013

CHICAGO, Illinois — Total hip arthroplasty costs nearly $6400 more in Medicare healthcare expenses over 7 years than treating osteoarthritis-related hip pain without joint replacement. However, it also appears to reduce mortality and the risk for new diagnoses of heart failure and depression, according to a large study.

"The trends are pretty clear," said principal investigator Scott Lovald, PhD. "Medicare patients with osteoarthritis of the hip who do not undergo hip arthroplasty are paying more for medical care as time goes on, compared with those who do receive arthroplasty."

Dr. Lovald, PhD, a biomedical engineer at Exponent, a scientific consulting company in Philadelphia, Pennsylvania, presented the findings here at the American Academy of Orthopaedic Surgeons (AAOS) 2013 Annual Meeting.

From a randomly selected sample of the Medicare population from 1997 to 2009, the investigators found 23,978 patients with diagnostic codes for hip osteoarthritis who had at least 1 year of follow-up and 7 years of claims payment data.

In this group, 10,535 underwent total hip arthroplasty and 13,443 did not.

For patients who underwent arthroplasty, the risk of dying at 7 years was half that of those who did not have surgery, after adjustment for age, sex, race, geographic region, and other variables (adjusted hazard ratio [HR] for mortality, 0.52).

Even at 1 year, risk for death was lower in the arthroplasty group (HR, 0.26), Dr. Lovald reported.

To determine the long-term disease burden of hip osteoarthritis, the investigators evaluated the risk for new diagnoses of congestive heart failure, ischemic heart disease and atherosclerosis, diabetes, and either minor or major depression. Dr. Lovald told *Medscape Medical News* that they focused on diseases known to be affected by complications of osteoarthritis, such as pain, increased disability, and reduced quality of life.

Hip replacement is a bargain.

"Interestingly, at 1 year, there was no significant difference for heart failure or depression, but at 7 years, the arthroplasty group had a significantly lower risk for both," Dr. Lovald said.

Risk for diabetes was lower 1, 3, and 5 years after arthroplasty, but the difference was only statistically significant at 1 year ($P = .01$).

Although the risk for ischemic heart disease and atherosclerosis was higher at 1 year in the arthroplasty group ($P < .0001$), there was no significant difference between groups at 7 years.

Table. Risk for New Diagnoses 1 and 7 Years After Hip Arthroplasty

Diagnosis	1-Year Hazard Ratio	1-Year *P* Value	7-Year Hazard Ratio	7-Year *P* Value
Heart failure	1.00	.90	0.92	.005
Depression	1.02	.53	0.90	.0003
Diabetes	0.91	.01	1.01	.88
Ischemic heart disease and atherosclerosis	1.14	<.0001	1.00	.95
Unspecified cardiovascular disease	1.28	<.0001	1.15	.0007

It is not clear why these patients have a higher short-term risk for ischemic heart disease, Dr. Lovald noted.

He acknowledged that a drawback of this study is that Medicare claims data do not include indexes for patient pain and function.

Overall, Dr. Lovald's team found that total direct healthcare costs were $6366 higher in the arthroplasty group than in the nonarthroplasty group ($89,154 vs $82,788).

"Many times there is an emphasis on the cost of joint replacement, but this study puts it in perspective. It shows hip replacement is a bargain," said session comoderator David Ayers, MD, from UMass Memorial Medical Center in Worcester, Massachusetts, who was not involved in the study.

He explained that it is reasonable to assume that the association between hip replacement and decreased long-term mortality and better overall health is related to the fact that patients are more physically active after hip replacement and have less pain.

"These are extremely important data for our patients and our specialty because they show improved long-term health at a relatively low cost," said Dr. Ayers, although he noted that it would be nice to see a follow-up longer than 7 years.

Risk Factors for Arthroplasty Complications

In a separate study presented at the meeting, some of the same investigators studied risk factors for revision surgery in the first year after primary total hip arthroplasty, using the same Medicare sample.

That study, led by Kevin Bozic, MD, from the University of California, San Francisco, evaluated the impact of 29 comorbid conditions.

The greatest independent risk factor for revision was depression at the time of initial hip replacement (HR, 1.64; 95% confidence interval [CI], 1.39 - 1.93). The risk for revision was 3.53% in patients who were depressed, compared with 1.86% in patients who were not ($P < .001$), report the investigators.

"The most interesting finding to us was that psychiatric illness increased the risk of complications," Dr. Bozic, who is chair of the AAOS Council on Research and Quality, said during a news conference. "Patients with depression experienced pain differently than those who did not have depression."

He told *Medscape Medical News* that the Medicare claims data did not identify whether the patients were receiving treatment for depression, only that they had a clinical diagnosis of it.

The presence, compared with the absence, of congestive heart failure at the time of hip replacement also raised the risk for early revision surgery (HR, 1.20; 95% CI, 1.01 - 1.43; 2.68% vs 1.93%; *P* = .038). Other risk factors for reoperation in the first year included coexisting rheumatologic disease, psychoses, renal disease, and urinary tract infection.

Dr. Bozic pointed out that the identification of potentially modifiable risk factors for complications of hip replacement has practical implications. "Next month, Medicare will start publicly reporting the outcomes, by hospital, for hip and knee replacement, including...complications and readmission rates."

Dr. Lovald is an employee of Exponent, which conducted the initial study design and all data processing and statistical analyses. Dr. Ayers and Dr. Bozic have disclosed no relevant financial relationships.

American Academy of Orthopaedic Surgeons (AAOS) 2013 Annual Meeting. Paper 779, presented March 22, 2013; Poster P72, presented March 19, 2013.

Send comments and news tips to news@medscape.net.

Cite this article: Hip Replacement Worth the Cost, Says Study. *Medscape*. Mar 28, 2013.