Impact Of Rheumatoid Arthritis And Lupus On Joint Replacement Surgery Identified

Two new studies by researchers at Hospital for Special Surgery have overturned common beliefs about joint replacement in patients with lupus and rheumatoid arthritis (RA).

In one study, researchers demonstrated that RA patients who undergo a knee replacement can expect outcomes that are similar to individuals undergoing the operation for osteoarthritis. In the other, investigators showed that lupus patients undergoing joint replacement surgery experienced far fewer adverse events than previously thought. The news will be reported at the annual meeting of the American College of Rheumatology/Association of Rheumatology Health Professionals, to be held Nov. 9-14, in Washington D.C.

Both studies relied on analyses of data from the HSS Total Joint Replacement Registry. Started in 2007, this prospective registry includes, among other things, data on all patients who seek care at HSS for knee and hip replacement surgery.

Lupus

Patients with lupus frequently need joint replacement surgery because they are treated with steroids that can lead to osteonecrosis (bone death caused by poor blood supply). Because little information is available about how lupus patients fare after surgery today, HSS researchers used the HSS Total Joint Replacement Registry to identify 101 lupus patients who underwent knee replacement (45) or hip replacement (56). They then matched each case to two similar patients who underwent the operation for osteoarthritis.

Patient pain and function had been assessed prior to surgery and two years after surgery using the Western Ontario and McMaster Universities Arthritis Index (WOMAC). WOMAC measures pain, stiffness, and functional limitation. It is one of the more widely used measuring tools for outcomes after total knee replacement. The investigators also used the Lower Extremity Activity Score (LEAS) to measure function. This score quantifies how much activity a person is capable of performing, ranging from being able to get out of bed to participate in vigorous physical activity.

The researchers found that two years after surgery, total hip replacement and total knee replacement pain and function outcomes were similar in patients with lupus compared with individuals who did not have lupus. Patients with lupus had much worse pain and function scores compared to their controls prior to surgery, but two years after the surgery, the scores were similar. Results from the short-form (SF)-36 health survey that measures general health demonstrated that patients with lupus scored significantly worse than other patients both before and after surgery.

In addition, the investigators found that almost none of the lupus patients who underwent knee replacement surgery did so because they had osteonecrosis, which was unexpected as traditionally osteonecrosis is thought to be high in lupus patients. Lupus patients who underwent hip replacement did have osteonecrosis, were younger (average age 54), and had a lot of lupus-related illness, including kidney disease and high blood pressure. compared with lupus patients undergoing the knee procedure. Total knee replacement patients were also heavier. In other words, they had characteristics typically seen in regular middle-aged patients who undergo a knee replacement for osteoarthritis.

"People have thought of these lupus patients as very ill and, yes, they are worse when they go into surgery and they are sicker when you look at their comorbidities, but actually they do almost as well as the OA patients," said Lisa Mandl, M.D., M.P.H. ., a rheumatologist at Hospital for Special Surgery, in New York City, who was involved with the study.

"Before this study, our assumption was that lupus patients underwent arthroplasty for osteonecrosis at least half of the time and that they don't do as well," said Susan Goodman, M.D., a rheumatologist at HSS, who led the study. "We now know that they do very well in terms of pain and function outcomes and that the knee patients are very unlikely to have osteonecrosis. They resembled their age matched control peer group."

Rheumatoid Arthritis

In a second study, researchers used the same registry to compare outcomes of rheumatoid arthritis (RA) patients who undergo knee replacement surgery to a control group of individuals undergoing the operation for osteoarthritis. Historically, RA patients have had higher rates of post-operative adverse events, but whether this was due to poorly controlled disease or the treatment of the disease was unclear. Starting in the 1980s, effective disease modifying drugs became available to treat patients with RA. In the late 1990s, entanercept, infliximab, and other biologic medication came on the market. Today, at HSS over 70% of patients are on immunomodulating drugs and over 50% are on biologics. Clearly these patients are very different from RA patients in past.

To investigate outcomes in these contemporary RA patients undergoing TKRs, investigators used the HSS Total Joint Replacement registry to identify 159 RA patients who underwent TKR and matched each case to two similar patients who underwent the operation for osteoarthritis. While patients with RA had worse pain and function and lower perceived health status prior to surgery compared to controls, there was no difference in operation time or in the time spent in the hospital post surgery. There were no deep joint infections in either group and no difference in superficial infections or rates of thromboembolism. Reoperations, mainly due to manipulation, were actually slightly higher in patients with osteoarthritis (8.8% vs. 2.5%).

"When a patient undergoes knee replacement, if they haven't regained adequate motion, our surgeons will sometimes put them under a nerve block or general anesthesia and literally bend the knee to restore motion. This is called manipulation," said Dr. Goodman who led the study.

The study shows that, contrary to common belief, infection and wound healing complication rates are not increased in patients with RA who undergo knee replacement, at least in a high volume hospital.

"Our concern was that in an era characterized by high level use of disease modifying drugs and immunosuppressants, the likelihood of infection would be greater," Dr. Goodman said. "This study shows we are well-educated about the risk of these drugs and we seem to be managing them. At least at HSS, we are not seeing a lot of infections."

"In this modern era, where RA patients come into surgery less sick, it looks like rheumatoid arthritis might not be the major risk factor that it once appeared to be in terms of short term adverse events," Dr. Mandl said.

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