Knee Rehab Deferred Cartilage Repair Surgery

Combination of gradual pace, use of knee loading to guide intensity, and education yields benefits.

BY MITCHEL L. ZOLER

FROM THE WORLD CONGRESS ON OSTEOARTHRITIS

BRUSSELS – A carefully designed, 3-month program of rehabilitation exercise and education in patients with articular cartilage lesions who were scheduled for cartilage repair surgery led to significant improvements in knee function in a single-center study with 48 patients.

Following the 3-month rehabilitation intervention, 64% of the patients said they no longer needed immediate surgery, said May Arna Risberg, Ph.D.

"I believe this [rehabilitation] program works for these patients. We will publish the program, and continue to use it ourselves, and we hope others will use it," said Dr. Risberg, professor of sports medicine at the Norwegian School of Sport Sciences in Oslo. Gradually increasing knee loading using an individualized schedule may explain the rehab program's success, she said.

"Patients with cartilage lesions are very different from osteoarthritis patients. You need to go much slower with progression of their knee loading. Rehab for cartilage needs to be slow and long," she said in an interview.

All 48 patients in the study had undergone prior rehab sessions run by other clinicians using different protocols. But aside from the focus on a gradual pace, an emphasis on using knee loading to guide the program's intensity, and a strong education component, the rehab program tested by Dr. Risberg didn't involve any novel approaches or exercise regimens.

Participating patients attended rehab sessions of the Oslo CARE (cartilage, active, rehab, and education) program an average of twice a week. Sessions included warm-up stretches, gait retraining, neuromuscular exercises, step-up and step-down exercises, and strength exercise for knee and hip muscles. Both the step and strength exercises featured gradually increasing loading over time. The program also included educational sessions and materials.

The study enrolled patients who had a focal femoral-condyle defect in the articular cartilage of one knee, diagnosed by arthroscopy, and who were scheduled for repair surgery. Their age averaged 34 years, (range, 17-50); 70% were men, and 84% had a medial femoral-condyle lesion. Participants had had their symptoms for an average of 47 months prior to the study.

Analysis of training diaries and responses in biweekly questionnaires showed that 79% of participants adhered to their rehab regimens, and 88% had follow-up assessments an average of 104 days after they entered the study.

At follow-up, participants averaged a 30% improvement over baseline in both extension and flexion of their injured knee, Dr. Risberg reported at the meeting, sponsored by the Osteoarthritis Research Society International. They also averaged improvements of 21%, 31%, and 37% in the triple, crossover, and one-leg hop tests, respectively, compared with baseline, all statistically significant increases.

They also had significant improvements in measures of pain, activity, and quality of life. Dr. Risberg cited the finding that nearly two-thirds of patients said they no longer needed immediate knee surgery as the best demonstration of their improvement.

She cautioned that despite completing the 3-month program, some patients had no significant response to their rehabilitation, and that additional studies should test the program in more patients with longer follow-up. ■

VITALS

Major Finding: A 3-month program of intensive knee rehabilitation produced a significant, 30% improvement in knee extension and flexion in patients with articular cartilage lesions who were scheduled for repair surgery. After the program ended, 64% of participants said they no longer needed immediate surgery.

Data Source: Single-center study of 48 patients with articular cartilage lesions.

Disclosures: Dr. Risberg said she had no conflicts of interest.

Middle-Aged Americans Lead Rise in Knee Replacement

BY MITCHEL L. ZOLER

FROM THE WORLD CONGRESS ON OSTEOARTHRITIS

BRUSSELS – Middle-aged Americans seem to have embraced total knee replacement, with the number of surgeries more than tripling from 68,000 in 1997 to 221,000 in 2007, according to data collected in the Nationwide Inpatient Sample.

This increase, which helped to drive an overall doubling of all U.S. total knee replacements during 1997-2007, did not result merely from the growing prevalence of obesity and the demographic growth of the 45- to 64-year-old age group, judging from the findings from further analysis of the data.

Those two factors accounted for, at most, a quarter of the increase, Elena Losina, Ph.D., reported in a poster at the congress.

A combination of additional factors may explain the rest of the rise, Dr. Losina said in an interview. These include:

► A rise in sports injuries that have led to posttraumatic arthritis, a trend exacerbated by the increased sports participation that began in the late 20th century.

► Increased willingness of surgeons to perform total knee replacement on patients younger than 65.

► Increased familiarity and comfort with the surgery – which did not become available until the late 1970s – leading to increased demand by younger patients.

VITALS

Major Finding: The number of total knee replacements done on Americans aged 45-64 rose from 68,000 in 1997 to 221,000 in 2007, more than tripling. The number done in Americans aged 65-84 rose from 183,000 in 1997 to 303,000 in 2007, a 66% increase.

Data Source: The Nationwide Inpatient Sample, annual data collection sponsored by the Agency for Healthcare Research and Quality.

Disclosures: Dr. Losina and Dr. Katz had no relevant disclosures.

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To watch an interview with Dr. Elena Losina on knee surgery rates, visit www.rheumatologynews.com.

"It's a combination of more early, advanced arthritis, shifting indications, and more willingness to operate," said Dr. Losina, codirector of the Orthopedics and Arthritis Center for Outcomes Research at Brigham and Women's Hospital in Boston. "More and more patients have been referred and at least consider surgery."

"Are patients in the [45- to 64-year-old] age group being offered surgery and accepting surgery more often? Is it because there is more osteoarthritis because of injury? Does it reflect patient demand in that age group? It's all speculation," agreed Dr. Jeffrey N. Katz, director of the center, and professor of medicine and orthopedic surgery at Harvard Medical School in Boston.

Some of the same factors also drove increased knee-replacement rates in patients aged 65-84 years, but the slope of the rise was not nearly as steep. In the group aged 65-84 years old, the number of U.S. total knee replacement surgeries rose 66% from 183,000 in 1997 to 303,000 in 2007. The absolute rise of 120,000 additional surgeries in the elderly clearly trailed the 153,000 increase in middle-aged U.S. adults.

But these numbers may not remain on their current trajectory. The surgery is not sustainable, Dr. Losina said at the congress, which was sponsored by the Osteoarthritis Research Society International.

"I think the growth will level off. I think Medicare will be capped, forcing patients to pay for knee replacement out of pocket, and eligibility criteria will tighten," she said. Currently, "we don't know what proportion of the surgery is appropriate," she added.

Another unknown is what middle-aged patients who receive knee replacements can expect about the eventual need for revision surgery. "It would be very surprising if revision rates were not higher in younger patients," said Dr. Katz, who coauthored the poster.

Younger patients sometimes try to resume the activities that initially drove them to knee surgery. "We need to study [revision] data from younger patients. The burden of revision in younger patients is unknown; it hasn't been studied." Dr. Losina said.

"We know that prosthetic knees are durable in older patients, but in older patients there is a strong, competing risk from mortality," she said. In the elderly, the revision rate for total knee replacement is roughly 1% per year following surgery.

"It's a very successful surgery. People are miserable and can't move and function because of their knee problems and total knee replacement brings them back to life. I think that explains the greater willingness" to use knee surgery on younger patients. "But we need to understand the societal and population implications of the trend we see," Dr. Losina said.

Her study used data collected in the Nationwide Inpatient Sample by the Agency for Healthcare Research and Quality, which currently collects data from more than 1,000 hospitals in 42 states.

The data showed a doubling of knee surgery overall from 1997 to a national total of 550,000 in 2007, a period when the U.S. population grew by just 15%. ■