

# Joint Distraction Promising in End-Stage Knee OA

BY BRUCE JANCIN  
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AMSTERDAM — Joint distraction via temporary external fixation may provide a powerful new tool in the management of severe knee osteoarthritis in younger patients, Dr. Floris P.J.G. Lafèber said at the annual European Congress of Rheumatology.

The purpose is not to provide an alternative to joint replacement surgery, but rather to delay the procedure until a point in life where the first prosthesis is likely to be the only one the patient will ever need, explained Dr. Lafèber of Utrecht University Medical Center, the Netherlands.

Patients with knee osteoarthritis (OA) secondary to athletic trauma often develop end-stage disease before age 55. Give a 55-year-old a prosthetic joint, however, and the patient is likely to require a complex revision by age 70. It's an expensive, challenging procedure, and the clinical results are not as good as the first time around, Dr. Lafèber said at the congress.

Joint distraction provides the ravaged knee with an extended restorative vacation. This is accomplished by placing pins in both bony ends of the knee joint, then joining the pins together in an external fixation frame that maintains 5 mm of joint distraction by x-ray.

The separation eliminates mechanical stresses on the articular surfaces, preventing further cartilage wear and tear. In addition, the lessened load on bone is believed to result in temporary osteopenia within the distraction area, he noted. This softened, demineralized bone also reduces stress on the cartilage. And when the fixation frame

is removed, the bone reloading triggers increased bone turnover with release of growth factors thought important to cartilage repair.

Thin flexible wires or springs in the distraction frame promote intermittent intraarticular fluid pressure changes. This is thought to be necessary for adequate nutrition of chondrocytes during the distraction period, which lasts 2-3 months. That's about as long as patients are willing to put up with the inconvenience, he said.

The first joint distraction studies were published over 12 years ago by Italian investigators working with hip OA patients. More recent work by Dr. Lafèber and his fellow investigators and several others has involved posttraumatic severe ankle OA in joint fusion candidates. Significant improvements in pain and function in three-quarters of patients have been documented with follow-up of 2-16 years.

To date, the pioneering work on knee OA by Dr. Lafèber's group involves seven patients with a maximum follow-up of 2 years. He termed the results "very promising." Pain scores averaging 8 on a scale of 10 at baseline dropped to 1 in the first 6 months, with the benefit sustained during the remainder of follow-up. Joint function improved from 20% of the maximum score to 80%.

"The results are seen even faster than in ankle distraction, with a similar degree of clinical benefit," said Dr. Lafèber.

A key unanswered question is whether these clinical benefits are accompanied by underlying structural changes in cartilage and bone. Dr. Lafèber and coworkers are obtaining serial x-rays and MRIs and gathering serum and urine samples for future analysis of cartilage



Joint distraction using a Howmedica system with springs provides the knee a restorative vacation.

and bone turnover markers in an effort to resolve the issue. Blinded scoring of joint status by arthroscopic examination shows preliminary evidence of benefit.

Asked if he has considered creating a control group via sham joint distraction, Dr. Lafèber replied that patients won't accept it. ■

## Tocilizumab Found to Provide Rapid JIA Improvement, Relief

BY NANCY WALSH  
New York Bureau

AMSTERDAM — In the first double-blind study evaluating tocilizumab in refractory systemic juvenile idiopathic arthritis, rapid and substantial improvements were seen, suggesting that interleukin-6 blockade is one of the most promising approaches for this condition, Dr. Shumpei Yokota said at the annual European Congress of Rheumatology.

A group of 56 patients with systemic juvenile idiopathic arthritis (JIA) diagnosed according to the criteria of the International League of Associations for Rheumatology were included in the multicenter Japanese study. A total of 62.5% (35) of the patients were female. Their mean age was 8.3 years, and mean disease duration was 4.5 years.

Interleukin (IL)-6 levels were high at baseline, at a mean level of 37.2 pg/mL.

Because this was a pediatric study, there was an initial 6-week lead-in period during which all patients received the active treatment of 8 mg/kg tocilizumab every other week. At the end of this phase, those who responded were randomized to active treatment on the same schedule or placebo for up to 12 weeks.

For patients receiving placebo who flared, the drug was reinstated as soon as possible said Dr. Yokota of the department of pediatrics, Yokohama City (Japan) University.

At the end of the 6-week open phase

of the trial, the JIA core set of responses among the 56 patients were as follows: 51 achieved 30% improvement, 48 achieved 50% improvement, and 38 achieved 70% improvement. Consistent improvements were seen in each core set variable, Dr. Yokota said.

Six patients withdrew during the lead-in phase of the study, and six others were not randomized because their C-reactive protein levels remained high. An additional patient was not considered evaluable because of inadvertent unmasking of the code. During the 12-week double-blind phase, 19 of 23 (82.6%) patients receiving placebo had a flare and were withdrawn, compared with 4 of 20 (20.0%) of those receiving the IL-6 blocker.

In other words, flare was prevented in 80% of the tocilizumab group and in only 17.4% of those in the placebo group, Dr. Yokota said. In addition, JIA-70 responses were seen in 85% of the tocilizumab group, compared with 35% of the placebo group.

One patient in each group withdrew because of adverse events. One patient experienced anaphylactic shock following the second infusion of tocilizumab, and one had a gastrointestinal hemorrhage, probably relating to long-term use of systemic corticosteroids, the investigator noted. The drug was generally well tolerated for periods of up to 18 weeks. Nonetheless, patients undergoing treatment with tocilizumab should be closely monitored, Dr. Yokota said. ■

## Adolescents With Rare Knee Problem Respond to Surgery

BY HEIDI SPLETE  
Senior Writer

HERSHEY, PA. — Otherwise healthy adolescents who had internal fixation surgery for osteochondritis dissecans of the knee returned to their sports activities about 8 months later, Dr. Mininder S. Kocher reported at the annual meeting of the American Orthopaedic Society for Sports Medicine.

The data argue in favor of internal fixation, especially for children approaching skeletal maturity who have less time to heal nonoperatively.

The overall healing rate was 85%, based on at least 2 years of follow-up data from 26 knees in 24 patients whose average age was 14 years, said Dr. Kocher, an orthopedic surgeon at Children's Hospital Boston. The cases included 9 stage II lesions (fissured), 11 stage III lesions (partly attached), and 6 stage IV lesions (detached). Other studies have shown similar healing rates of 80% or higher.

The cause of osteochondritis dissecans (OCD) remains unclear, although possible causes include repetitive microtrauma, poor bone growth, and genetic predisposition. Most cases occur in active boys aged 10-20 years, but the diagnoses in girls have increased. Dr. Kocher's study included 13 boys and 11 girls.

Healing was evident 6 months after surgery based on several scores, including the International Knee Documentation Committee, Lysholm, and Tegner scales,

which measure knee function in athletic patients. The average Tegner activity level score, which uses a scale of 1-10, increased from 4.9 before surgery to 7.4 after surgery.

The healing rate was slightly lower in the seven patients who had undergone previous surgery for OCD than in those with no prior OCD surgery (71% vs. 89%).

After surgery, the patients recovered by performing careful weight-bearing and range-of-motion exercises, and gradually returning to sports.

There were no significant differences in healing rate based on the type of lesion and, in fact, all six of the cases of stage IV (unstable lesions) healed. A lateral versus medial location had no apparent effect on healing, and no significant complications were reported in any patients.

There were four cases of unhealed lesions after the procedure (15%). Two of these were treated with chondral resurfacing, and two were treated with a second internal fixation; all four patients were able to resume their sports activities.

The study was limited by its small size—which prevented subgroup comparisons—and by its retrospective nature.

"When faced with an unstable juvenile OCD lesion of the knee, we are often forced to choose between internal fixation or fragment removal with a chondral resurfacing technique," Dr. Kocher said. "Given the relatively high healing rate, good functional outcome, and low complication rate, we would advocate internal fixation of these lesions when technically possible." ■