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Redefining the Patient Experience:

Montefiore Medical Center Opens Joint Replacement Center

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NEIL COBELLI, M.D., CHAIR OF THE DEPARTMENT OF ORTHOPEDIC SURGERY AT MONTEFIORE MEDICAL CENTER AND A PROFESSOR AT ALBERT EINSTEIN COLLEGE OF MEDICINE, LOOKED AT TWO HIP JOINTS ON HIS OPERATING TABLE WITHIN THE SAME WEEK AND SAW THE SAME THING — TWO PEOPLE WHO WANTED THEIR LIVES BACK.

ONE WAS A 90-year-old man. One was a 27-year-old woman.

Dr. Cobelli says the man was in fairly good condition but had been turned away for hip replacement surgery from several hospitals in the region because of his age. He and his wife both enjoyed independent living, but their vivacity was diminishing because of his chronic pain. He couldn't get around. They couldn't enjoy their time together.

The young woman had lived through a devastating car wreck that had taken the life of one of her children. Dr. Cobelli says she had fractured her hip socket in the accident, and a successful reconstruction had put the pieces back together. But the joint wore out in a very short time. In the 18 months since the accident, she was in constant pain, on high doses of medications and unable to care for her other children.

Neil J. Cobelli, M.D., professor and Chair of the Department of Orthopedic Surgery

Both patients had the same outcome — successful hip replacement surgeries that got them back to their families and their lives.

"At Montefiore, we have done a very good job for more than 35 years at the orthopedic aspect of joint replacement," Dr. Cobelli says. "In the last year and especially in the last six months since we've opened the Joint Replacement Center, we've focused on the patient's experience and the family's experience and tried to make conditions much better for everybody involved."

Montefiore's Joint Replacement Center, a program of the Department of Orthopedic Surgery of Montefiore Medical Center and associated with Albert Einstein College of Medicine, opened in July 2012 after a team of orthopedic surgeons convened to evaluate their current services.

"The world of medicine has been changing pretty dramatically in the last few years," Dr. Cobelli says. "We have had an increasing emphasis on patient satisfaction, patient outcomes and patient experience. So, we decided to bring together all our surgeons undertaking joint replacement and have each of us express how we wanted to do things.

Sun Jin Kim, M.D., assistant professor and Clinical Director of the Joint Replacement Center, and Yossef C. Blum, M.D., Assistant Clinical Director of the Joint Replacement Center, perform joint reconstruction surgery.

"We felt that we were each doing a very good job in terms of joint replacement, but the patient experience wasn't uniformly good," Dr. Cobelli says. "We decided to dramatically improve the experience patients have when they come to our institution for joint replacement. We've done that by putting together a team of people who orchestrate the patient's experience from start to finish."

That includes intensive preoperative and postoperative education; a multidisciplinary team that creates a comprehensive care plan for each patient; one visit for blood work, testing and medical clearances; a contact person assigned to the patient and his or her family — everything that will impact the patient's visit.

"I think one of the things that distinguishes us is we're trying to provide personalized, patient-friendly care for joint replacement inside a medical center environment," Dr. Cobelli says. "We want to maximize the benefits of a medical center and minimize the disadvantages of a lack of personal experience."

Putting the Patient and Family First

One of the principal steps toward that end is an emphasis on patient-family-centered care, says Sun Jin Kim, M.D., Clinical Director of the Joint Replacement Center, Chief of Adult Reconstruction Service in Montefiore's Department of Orthopedics and an assistant professor at Albert Einstein College of Medicine.

Patient-family-centered care is an approach to health care delivery rooted in partnerships between providers, patients and their families. It has been shown to lead to better outcomes and greater patient and family satisfaction.

"We adopted this approach with the opening of the Joint Replacement Center, and it's one of the first of its kind in this area," Dr. Kim says. "We're putting patients first and getting their families involved to look at care from the patient's point of view. From the moment patients call our office and say they have a joint problem, we have a dedicated team to help them."

Dr. Cobelli adds that certain team members have undergone specific training from an out-of-state medical center that has successfully adopted this approach.

"It involves mapping and shadowing," Dr. Cobelli says. "We have actually followed a number of patients from their homes, driven with them to the hospital, helped them park their cars, seen how they were greeted and followed each step of the process with them all the way to discharge from the hospital. It's done from the patient's and family's points of view — all

Jonathan Courtney, M.D., orthopedic surgeon, examines a patient.

of the challenges families face — and we try to solve those problems for them. It relieves anxiety and uncertainty."

Battling a History of Pain

Another emphasis of the Joint Replacement Center that is improving the patient's experience is the development of a pain management team to address what is typically considered a painful procedure.

Dr. Kim says Montefiore anesthesiologists are fellowship-trained in pain management. During a joint replacement procedure, the team provides a regional anesthetic, which allows them to administer selective nerve blocks around the leg. This provides longer-lasting analgesia following surgery and, whereas patients used to receive general anesthetic and awake in pain, now the anesthesiologist can block certain nerves in the leg to provide 24 to 48 hours of pain relief without using a narcotic.

"In a study, they noticed that patients who have blocks are functionally improved and mobilizing out of bed much faster. Their pain is improved, and they need fewer narcotics after surgery," Dr. Kim says.

Dr. Cobelli says they are also looking at the advantages of an adductor canal block, which he says has all the advantages of a nerve block but doesn't knock out nerve function to the quadriceps. That means the patient can stand up and begin the recovery process sooner.

"We're moving scientific knowledge of pain management forward," he says.

Extending the Life of Joint Replacement

One of the persistent barriers to the long-term success of joint replacements is the wear that erodes the implant surfaces, or osteolysis.

When a patient has a joint replacement, small particles or debris form and cause an inflammatory response around the tissue. If that occurs, it can shorten the lifespan of the joint replacement.

Approximately 500,000 knee replacements and nearly 300,000 hip replacements are performed every year, according to the American Academy of Orthopaedic Surgeons. Approximately 10% of those are revision surgeries to replace worn components.

Dr. Cobelli says Montefiore has undertaken research focusing on the deterioration of joint replacements and the body's immune response to the debris.

"Small amounts of debris seem to be tolerated," Dr. Cobelli says. "But as the amount of debris increases over time, the body's ability to deal with it degrades and leads to the loss of function of the prosthesis."

Dr. Cobelli says Montefiore's research lab has a national reputation and the necessary resources to explore the nature of the problem.

"Our lab has specimens sent from some of the biggest-name hospitals in the country because we're able to bring to bear immunological techniques that allow us to further explain what's going on," he says.

Marcie B. Cobelli, FNP, leads a multidisciplinary education session for patients and their families.

Kelly Lockwood, Assistant Chief of Physical Therapy, along with Joy Norgaard, Assistant Chief of Occupational Therapy, provide gait training to a postoperative patient.

Improving through Research

Through its affiliation with Albert Einstein College of Medicine, the Joint Replacement Center has a world-class lab at the forefront of arthritis research and joint replacement longevity. The research focus also includes identifying osteoarthritis early in its progression and blood-conserving methods using various pharmaceuticals and implant devices.

Other studies are looking at inflammatory fluid to see if inflammatory markers can be treated to control the pain of arthritis. Yet another study, in conjunction with a pharmaceutical company, is examining lubricant for the knee and how inflammatory markers are affected by the injection of medication.

Hitting the Ground Running

The Joint Replacement Center opened its doors with a broad program of comprehensive care.

Using state-of-the-art technology and techniques, the center offers a host of services, including minimally invasive approaches, blood-sparing techniques, hip arthroscopy, hip resurfacing, anterior and posterior approaches to the hip, unicondylar knee replacements, and patellofemoral knee replacements.

World-class musculoskeletal care includes pediatric orthopedic care; pediatric and adult scoliosis surgery; sports medicine issues; orthopedic and podiatric approaches to foot and ankle care; orthopedic tumor care; rheumatology, hand, shoulder and upper extremity care; and integrative and nonsurgical modalities.

Looking Back, Looking Forward

Drs. Cobelli and Kim both agree that joint replacement has come a long way.

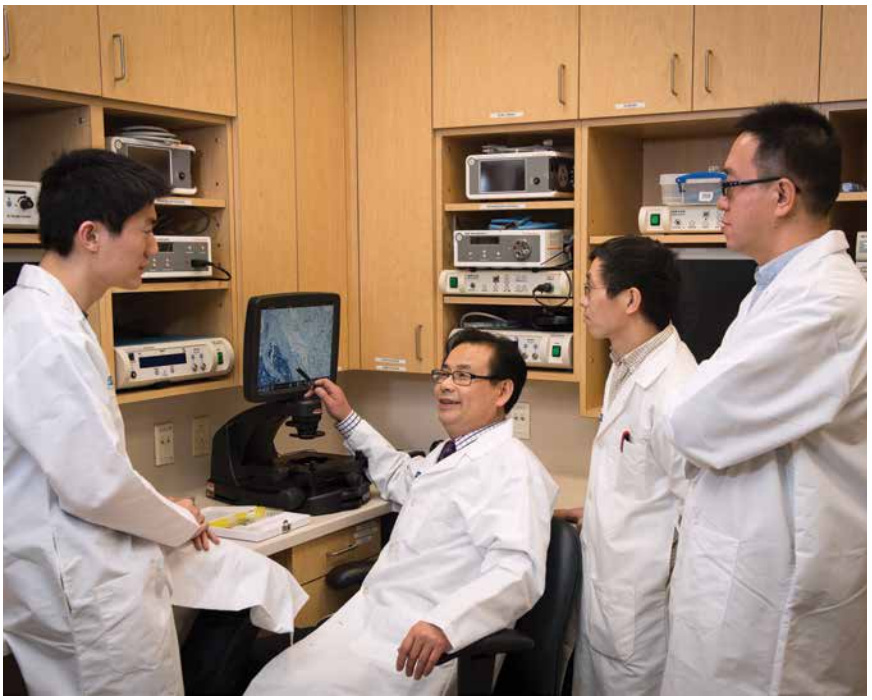
"Incisions have gotten smaller, blood loss has been minimized, pain has been reduced and longevity of the implants has increased," Dr. Kim says. "Hopefully in my lifetime, we'll find a cure for arthritis, and there won't have to be any more joint replacements. But I think we'll still be in business because we'll still be fixing the joint replacements from 20 years ago that have failed."

Looking ahead, Dr. Kim anticipates greater volume with the aging of the baby boomer generation.

"The original purpose of joint replacement was to get people out of pain," he says. "Now, more people are having it done for activities of daily living or lifestyle reasons. They're coming in earlier and earlier to have joint replacements because they want to get back to the things they enjoy doing that they can't with arthritis."

Dr. Cobelli notes that technology has been making steady advances. However, he says he doesn't anticipate any great strides on the horizon for development of modalities. There are greater needs.

"The prostheses we use now have evolved, work very well and last a very long time," he says. "There are issues we



Herb Sun, Ph.D., associate professor and Director of Orthopedic Research, discusses findings with research laboratory members Zhiyong He, Ph.D.; Haixiang Liang, M.D., Ph.D.; and Justin Tang, M.S.

still need to work out. The response to the debris has created a challenge to overcome. But what the future holds is the ability to diagnose at a much earlier stage and work out therapeutic modalities that can either postpone or eliminate the need for surgery. That's what all of us are striving for."

Opening Doors to Everyone

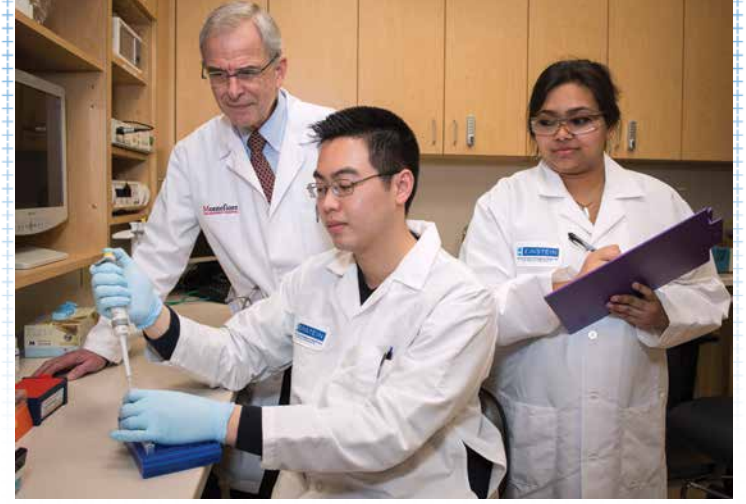
As much as the Joint Replacement Center is performing successful surgeries, optimizing the patient-family experience and conducting promising research, Drs. Cobelli and Kim both take pride in its commitment to accept all patients.

"We take all patients regardless of ability to pay," Dr. Kim says. "Our primary goal is to provide superior orthopedic care to everyone who asks for it. I think that's what separates us from most joint centers out there. We don't hand-select the healthiest patients, the ones with the best ability to pay. We take everyone."

Dr. Cobelli adds, "We care for a lot of folks who have been told at other places that they don't fit the profile. We treat a lot of folks who've been told they're too old or too sick. We want to deliver superb, state-of-the-art care to everyone."

For more information about the Joint Replacement Center at Montefiore and its services, visit www.montefiore.org.

Surrounding Drs. Cobelli and Kim are the surgeons of the Joint Replacement Center at Montefiore.



John Hardin, M.D., Co-Director of the Musculoskeletal Health Center and professor of orthopedic surgery, guides Daniel Leong, M.S., Ph.D. student, and Marwa Choudhury, M.S., research assistant.

RESEARCH STRIVES TO SPOT DISEASE EARLY

TODAY'S DIAGNOSIS OF osteoarthritis has its limitations. It is difficult to spot early, and by the time symptoms such as pain and stiffness send a patient to the doctor's office, the disease has progressed past simple treatment.

"Right now, most diagnoses of osteoarthritis involve looking at X-rays that have really terrible changes in them," says Neil Cobelli, M.D., Chair of the Department of Orthopedic Surgery at Montefiore Medical Center and a professor at Albert Einstein College of Medicine. "When you see an X-ray of osteoarthritis, you see that the architecture of the joint has come apart completely, like looking at a crumbling building."

But X-rays are an imperfect resource for diagnosis. While they reveal the condition of the bones, they don't necessarily show soft tissue changes, where the earliest indications of osteoarthritis may lie.

When a joint has deteriorated to the point of "a crumbling building," Dr. Cobelli says there's little choice other than to perform joint replacement surgery.

That's why it's so important to diagnose osteoarthritis early, before surgical intervention is the only option. The problem is, however, that medicine has yet to evolve to the point that physicians can screen for early osteoarthritis to halt further progression of the disease.

But leading research in the field is working to identify biological markers to detect osteoarthritis early. The orthopedic laboratory at Montefiore is conducting several studies aimed at early diagnosis of the disease, also focusing on biological markers. These biological markers could hold the key to identifying a progressive disease that is asymptomatic in its early stages.

"Right now, the markers don't exist," Dr. Cobelli says. "There aren't any good markers that say, 'your XYZ level is high, therefore you're at high risk of getting osteoarthritis in your lifetime.' But if we can find markers for arthritis that show the joint hasn't been destroyed, maybe we can find a way of intervening to stop the joint from progressing to complete destruction.

"Our labs are focusing on looking at the mechanisms of defining the earliest stages of osteoarthritis at a time when nonsurgical interventions would make a difference," he concludes. "We're looking at putting ourselves out of business."