



Miller School Orthopaedic Surgeons Receive Prestigious Grant to Study Impact of Glucose on Joint Replacement Outcomes

Two orthopaedic surgeons at the University of Miami Miller School of Medicine have received a national research grant for a ground-breaking study on patient glucose levels that could potentially improve outcomes for total joint replacement procedures.



From left, Michele R. D'Apuzzo, M.D. and Victor H. Hernandez, M.D., M.Sc.

The Orthopaedic Research and Education Foundation (OREF) awarded a three-year \$300,000 grant to Victor H. Hernandez, M.D., M.Sc., associate professor of orthopaedics and chief of the Division of Arthroplasty & Adult Joint



Reconstruction/Research Director, University of Miami Miller School of Medicine and Jackson Health System; and Michele R. D'Apuzzo, M.D., associate professor of orthopaedics and director of the Fellowship Program in Adult Reconstruction. The OREF grant honors the memory of Jorge O. Galante, M.D., a pioneer in the field of joint replacement and a mentor to generations of total hip and knee replacement surgeons.

“Congratulations to Drs. Hernandez and D'Apuzzo for this prestigious award,” said Thomas M. Best, M.D., Ph.D., professor of orthopaedics, biomedical engineering, family medicine, kinesiology, and vice chair for research in the Department of Orthopaedics. “We look forward to seeing the results of your work and next steps to improve the care of our patients while building a national reputation in the field.”

The Miller School-led study, “Increased Glucose Variability Perioperatively Is Associated with Adverse Outcomes After Total Joint Arthroplasty (TJA),” focused on follow-up care for diabetic and non-diabetic patients who have undergone total hip or knee replacement procedures.

“We know very little about glucose levels after joint replacement, particularly in non-diabetics,” said Dr. D'Apuzzo. “We are honored to receive this highly competitive grant, and hope that our study will shed light on this metric and help us improve postoperative care in this patient population.”

Steroids used for pain management in hip and knee procedures can cause a spike in a patient's glucose levels – a particular concern for patients with diabetes or pre-diabetes conditions, said Dr. Hernandez. “Higher glucose levels are associated with an increased risk of infection,” he added. “Delays in wound



healing make it easier for surface bacteria to penetrate into the joint, making the infection more difficult to control, even with intravenous antibiotics.”

As principal investigators of the OREF-funded study, Drs. Hernandez and D’Apuzzo plan to enroll 2,400 diabetic and nondiabetic patients, initially at the University of Miami and later expanding to other academic medical centers. Participants will have their glucose levels monitored after surgery and wear a portable monitoring device for a month after their procedures. Outcomes will be measured based on a 90-day hospital readmission rate.

“We can track how participants’ glucose levels change, and adjust medications, if necessary,” said Dr. Hernandez. “We will also be able to evaluate rates of postoperative surgical site infection and take steps to control superficial infections before they become deeper problems.”

Dr. Hernandez said the Miller School team has been conducting ongoing research on co-morbidities associated with joint replacement, including factors like smoking and hepatitis C. “This new study is an outgrowth of our prior research, and we hope it leads to new insights on caring for patients following total joint replacement.”

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