Obese patients face increased risks for infection and dislocation following revision hip surgery

May 8 2008

Along with age and injuries, obesity is a leading risk factor for osteoarthritis (OA), a painful and disabling joint disease. While excessive weight can aggravate the toll on almost any joint, obesity has been associated with a higher prevalence of hip OA and an increase in total hip arthroplasty (THA).

Whether obese hip OA patients are more prone to postsurgical complications, however, remains open to debate and investigation, since the results of existing studies conflict. What's more, only a few short-term studies have focused on how obesity affects the outcomes of revision THA. Compared to primary THA revision surgery is a longer and more complicated procedure implying more extensive tissue damage and a greater risk of prosthetic joint infections and dislocations, as well as other long-term complications.

Researchers at Geneva University Hospitals set out to evaluate the impact of obesity on the incidence of serious complications after revision THA, over a period of up to 5 years. The team also aimed to determine whether functional improvement, pain, and satisfaction 5 years after the second hip replacement differed between obese patients and patients of healthy weight. Their results, presented in the May 2008 issue of *Arthritis Care & Research*, reveal a strong correlation between obesity and high rates of adverse events, as well as lower functional gains and more persistent pain, after revision THA.

This long-term study focused on all patients who underwent a revision THA, excluding re-revisions, at the university's hospital—the only public hospital serving the urban and suburban populations of Geneva, Switzerland—between 1966 and 2006. Of the 204 subjects, 114 were women and 90 were men, with a mean age of 71.6 years. Based on height and weight data obtained just before surgery, 52 patients, 25 percent of the sample, were defined as obese, with a body mass index (BMI) of 30 or more. The standard range for a normal BMI, the ideal weight to height ratio, is between 18 and 25. To further assess the association between BMI and postoperative outcomes, patients were also examined in 4 BMI categories: less than 25; 25 to 29.9, defined as overweight; 30 to 34.9; and 35 or more.

Based on patient records and follow-up examinations, the researchers first documented the occurrence of one or more adverse events within 5 years after the first revision THA: surgical site infection, dislocation of the prosthetic hip, or re-revision surgery for any cause. They then relied on trusted, hip-specific clinical evaluations, including the Harris Hip Score (HHS), along with in-person and phone interviews with patients, to measure each subject's functional status, level of pain, and general satisfaction with the procedure 5 years later. Finally, researchers used statistical analyses, including incidence rates and hazard ratios, to compare the outcomes between obese and non-obese patients after revision THA.

Overall, 20 complications occurred in 17 (33 percent) of the 52 obese patients, compared with 18 events in 13 (9 percent) of the 152 non-obese patients. In terms of specific complications, the incident rate was 4 times higher for surgical site infection and 3.5 times higher for dislocation. Even more striking, the incidence rate for occurrence of one or more adverse events rose with rising BMI. This increase was small between normal and overweight patients—1.5 times higher. Yet, it became significantly greater in the group with a BMI between 30 and 34.9—4.5

times higher than normal weight patients. And it escalated to an alarmingly increase in the group with a BMI of 35 or more—10.9 times higher. In these calculations, adjustments were performed for age, sex, and preoperative health status.

For those patients scheduled for a 5 year follow-up visit, 83 percent of the obese patients and 85 percent of the non-obese patients were available for evaluation. In general, the obese patients had moderately lower functional improvements and higher levels of routine hip pain. However, patient satisfaction with the result of their revision THA was gauged to be about the same in both groups.

As its lead author, Dr. Anne Lübbeke, acknowledges, this study is limited by the relatively small number of adverse events resulting in large confidence intervals and restricting the adjustment for baseline differences between obese and non-obese patients to the most important confounding factors. Despite such weaknesses, the findings reinforce revision THA as a technically-challenging intervention, particularly when performed on obese patients.

“Surgeons, patients, and referring physicians should be aware of an increased risk in this patient group,” Dr. Lübbeke stresses. “Further studies are necessary to evaluate whether changes in medical preparation, surgical technique, and implant choice can help reduce the adverse event rate in obese patients undergoing revision THA.”

Source: Wiley