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CORR Insights®: Dual-mobility or Constrained Liners Are More Effective Than Preoperative Bariatric Surgery in Prevention of THA Dislocation

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Where Are We Now?

The obesity epidemic is one of the greatest health crises facing us, and the United States leads the world in this troubling trend. In the last 25 years, the rates of obesity have increased dramatically, with

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nearly 35% Americans considered obese and a startling 68% either overweight or obese [5]. Several health parameters are negatively influenced by increasing prevalence of obesity, including the complication rates of total hip arthroplasty (THA). Wagner and colleagues [6] demonstrated a higher risk of several complications after THA in patients with obesity, including a higher risk of early dislocation. The current study by Hernigou and colleagues adds further evidence to the association between obesity and hip instability.

The paper first asks whether the risk of dislocation is changed when a standard implant (32-mm head) is used in either patients with or without obesity. The answer is clear: Patients with obesity have a higher risk of dislocation.

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They then query whether dislocation is less likely when a patient has successful preoperative bariatric surgical procedure, with reduction of the BMI to the normal range. Unfortunately, the answer is (frustratingly) no. In fact, dislocations were more common in the postbariatric surgery group at 1 year than in the obese group (13 vs 6%). This is not the first paper to question the benefits of bariatric surgery in the total joint population, with multiple studies [2–4] showing no reduction in complications when patients with total joint underwent preoperative bariatric surgery.

Hernigou and colleagues instituted a practice change in 2008 in which constrained or dual-mobility liners were used both in patients with obesity and in those who had previously undergone bariatric surgery. The risk of dislocation decreased to 2% in this cohort, without any apparent increase in mechanical failures. This result would be expected as both of these constructs have more inherent mechanical stability, but the question is whether this practice would influence the long-term integrity of the

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construct. Both loosening and mechanical failure of these devices, either through breakage of the locking ring or intraprosthetic dislocation, have been raised as concerns.

unique failure mechanisms and higher costs in more than one-third of our patients? (2) Is there a national need for enhanced stability devices in patients with obesity?

approaches. Lastly, we need a thoughtful cost-benefit analysis to help determine whether it is justified to use a more expensive implant to reduce the dislocation rate on a routine basis in this high-risk population.

Where Do We Need To Go?

With obesity on the rise and dislocation remaining one of our more dreaded complications, this paper provides an algorithm and rationale for utilizing these devices in patients at higher risk of dislocation. It appears that their institution-wide change was implemented because of the alarming 6% 1-year rate of dislocation in their patients who are obese. Institutions and surgeons may need to evaluate their own outcomes to determine if this sort of intervention is indicated. In the last 10 years, with larger femoral heads, enhanced soft-tissue repair or alternate approaches, the overall dislocation risk in the US appears to have plateaued at 2% [1]. Subgroups of patients who are at high risk for dislocation (for example, patients with femoral neck fractures, alcoholism, or neuromuscular disease) are already considered candidates for components with enhanced stability, and patients with obesity may need to be added to that list. Two questions to consider: (1) Should we be using devices such as a dual-mobility bearing, which have

How Do We Get There?

The answers will come from the data. The US already has several large databases that researchers are successfully mining, and we are moving towards a comprehensive total joint registry. Establishing the frequency both of early and late dislocation for patients of differing BMI's may help us stratify where devices such as the dual mobility should be considered. Surgeons should also follow their own outcomes to determine in their own settings whether the frequency of dislocation that they observe justifies an intervention like more-consistent use of dual-mobility devices in patients with obesity.

Furthermore, both short- and long-term outcomes on dual mobility and newer constrained devices will be required. By evaluating large numbers of patients through the use of registries, we should be able to determine whether there is any higher risk of mechanical failure with these devices. We need to be cautious in the uniform implementation of new technology before we have a full accounting on the potential downsides of these

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