Temporal Trends in the Ratio of Postoperative Complications to Body Mass Index Among Patients Undergoing THA: How are we Doing?

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INTRODUCTION:

Elevated body mass index (BMI) has been well-demonstrated to be associated with complications following total hip arthroplasty (THA). As improvements are made in surgical technique and postoperative care, it is important to continuously re-assess the relationship between BMI and adverse outcomes. Thus, our primary aim was to identify temporal changes in the contribution of BMI to adverse outcomes following THA.

METHODS:

Patients undergoing primary, elective THA were identified in a national database from 2012-2020. Rates of major and minor complications and extended length of stay (ELOS) greater than 2 days were calculated using international classification of disease (ICD) coding. The prevalence of each postoperative outcome was calculated per 100 units of BMI (aBMI). To isolate the effect of BMI on postoperative outcomes, changes over time were analyzed using linear regression analysis controlling for age, sex, American Society of Anesthesiology (ASA) classification and smoking status.

RESULTS:

230,056 patients were included. Mean age 65.9 ± 11.2, BMI 30.2 ± 6.5. 7,893 (3.5%) of patients had a major postoperative complication, 5,345 (2.3%) of patients had a minor complication, 2,639 (1.15%) had a deep or superficial surgical site infection (SSI). 75,988 (33%) of patients had LOS >2 days. Overall, the ratio of major complications to aBMI decreased from 0.122 to 0.105 (14% decrease), and the ratio of patients with ELOS to aBMI decreased from 1.825 to 0.385 (79% decrease). The ratio of patients with SSI increased slightly from 0.371 to 0.395 (6.4% increase).

DISCUSSION AND CONCLUSION:

From 2012 to 2020, elevated BMI has become significantly less contributory to major postoperative complications and ELOS following elective THA, however, the contribution of BMI to SSI risk has not improved. This suggests that BMI is becoming a less important risk factor for overall adverse outcomes, however, BMI remains an important contributor to postoperative complication risk.