

Effect of BMI Status on Postoperative Outcomes in Patients Undergoing Major Head and Neck Surgery

Introduction: Low body mass index (BMI) is associated with risk of developing head and neck cancer and poorer outcomes, but there exist a paucity of literature using a national surgical database. This study seeks to investigate the effect of BMI status on thirty-day postoperative outcomes of patients with head and neck squamous cell carcinoma (HNSCC).

Methods: A retrospective cohort study was done querying the ACS-NSQIP database between 2007-2017. Patients undergoing major surgery for HNSCC were included while patients without a calculated BMI were excluded. BMI groups were stratified based on the World Health Organization criteria: underweight normal; pre-obesity; obesity I; obesity II; and obesity III. Multivariate logistic regression analysis controlling for pre-/perioperative variables with $p < 0.05$ in univariate phase were used to evaluate BMI status as a risk factor for adverse postoperative outcomes.

Results: A total of 8663 patients were isolated. Underweight patients were significantly most likely to be African American (AA), have a modified Charlson or ASA score > 3 , and have HNSCC in larynx/hypopharynx (all, $p < 0.05$). Underweight patients also significantly had the longest operative time (426.6 vs ≤ 383.5 minutes; all, $p < 0.05$) and length of stay (11.4 vs ≤ 9.0 days; all, $p < 0.05$) compared to all other BMI groups.

Multivariate logistic regression showed underweight patients had increased odds of wound (OR 1.5) or cardiac complications (OR 2.4) as well as mortality (OR 2.0) (all, $p < 0.05$). Pre-obesity to obesity III were protective for wound complications while pre-obesity to obesity I were protective for sepsis-related complications (all, $p < 0.05$).

Conclusion: HNSCC patients with underweight BMI had significantly increased odds of wound/cardiac complications and mortality, longer length of stay or operative time, and were more likely to be AA. There may exist possible disparities in AA population contributing to their higher rate of underweight status.