

Background

Thirty-day mortality following outpatient surgery is unexpected and undesired. We investigated preoperative risk factors, operative variables, and postoperative complications associated with 30-day death after outpatient surgery.

Methods

Using the 2005-2018 ACS-NSQIP database, we evaluated 30-day mortality rate trends over time after outpatient operations. We analyzed associations between 37 preoperative variables, operation time, hospital length of stay, and 9 postoperative complications with mortality rate using chi-square tests for categorical data and t-tests for continuous data. We used forward selection logistic regression models to determine the best predictors of mortality preoperatively and postoperatively. We also separately analyzed mortality by age groups.

Results

2,822,789 patients were included. The 30-day mortality rate did not change significantly over time ($p=0.34$, Cochran-Armitage trend test), remaining steady around 0.06%. The most significant preoperative predictors of mortality included the patient having disseminated cancer, decreased functional health status, increased American Society of Anesthesiology Physical Status Classification (ASA class), increased age, and ascites, accounting for 95.8% (0.837/0.874) of the full model c-index. The most significant postoperative complications associated with increased risk of mortality included having cardiac (26.95% yes vs 0.04% no), pulmonary (10.25% vs 0.04%), stroke (9.22% vs 0.06%), and renal (9.33% vs 0.06%) complications. Postoperative complications conferred a greater risk for mortality than preoperative variables. Mortality risk increased incrementally with age, particularly past age 80.

Conclusions

The operative mortality rate after outpatient surgery has not changed over time. Patients over 80 years with disseminated cancer, decreased functional health status, or increased ASA class should be considered for inpatient surgery.