Is Operative Approach and Higher BMI Associated with Worse Outcomes in Thoracic Trauma Surgery

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Abstract

Introduction

Video-assisted thoracoscopic surgery (VATS) has shown to be useful in patients with blunt thoracic injury and stable hemodynamics. Few studies have evaluated the role of body mass index (BMI) in thoracic surgery after trauma. We hypothesized that patients undergoing an open intervention and higher BMI would have a higher mortality and increased need for tracheostomy.

Methods:

The Trauma Quality Improvement Program (TQIP) was queried in 2019 for patients that underwent a minimally invasive or open chest procedure after 24 hours. Demographics and outcomes were abstracted. Primary outcomes included ventilator days, tracheostomy, and mortality. Multivariable logistic regression (MLR) was performed to determine predictors of mortality and need for tracheostomy.

Results:

Of the 1,109 patients identified, a majority were male (78%), 30% had COPD, 16% underwent tracheostomy and 58% underwent VATS. Patients who underwent thoracotomy had higher mortality (6% vs 3%,$p<0.05$), higher tracheostomy rates (18% vs 13%,$p=0.19$), more ventilator days (2 vs 0,$p=0.015$), and longer LOS (18 vs 16 days,$p=0.004$). On MLR, smokers (OR 6.58; 95%CI 1.77-24.56,$p=0.005$), older age (OR 1.04; 95%CI 1.02-1.06,$p<0.0001$) and higher ISS (OR 1.07; 95%CI 1.04-1.09,$p<0.0001$) were predictors of mortality. Unplanned intubation (OR 4.26; 95%CI 2.57-7.06,$p<0.0001$), higher ISS (OR 1.04; 95%CI 1.023-

1.054,p<0.04), and diminished GCS (OR 0.879; 95%CI 0.845-0.915,p<0.0001) were found to be associated with need for tracheostomy.

Conclusions:

Open operative approach and BMI were not predictors of mortality or tracheostomy. Variables such as age, smoking, and ISS are not modifiable. These patients may benefit from monitoring in the ICU to prevent respiratory failure and mortality.

Take home message: BMI and minimally invasive approach to thoracic trauma does not predict mortality.