

Abstract Detail



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Title Ventilator Dependence Risk Score (VDRS): Using NSQIP Data to Assist Clinical Decision Making

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Abstract Introduction: Ventilator dependence (>48hrs) often occurs in the early postoperative period. Reducing these rates may require preoperative intervention. As aggressive preoperative pulmonary optimization is resource intensive, a risk assessment tool will help identify those patients who will derive the greatest benefit. Methods: We retrospectively reviewed data from our institution's inpatient, non-emergent general and vascular procedures sampled for ACS NSQIP between 2006 and 2013. A multivariable logistic regression identified independent preoperative risk factors associated with ventilator dependence. From these risk factors, we developed a weighed multivariable risk score and evaluated goodness-of-fit by ROC analysis. Results: Multivariable analysis of 7444 patients identified 11 factors that were independently associated with ventilator dependence. Our risk score assigned 1 point each for male gender, report of dyspnea, colon and hepatobiliary procedures; 2 points each for age (>60 years), current smoker, dependency, signs of SIRS/sepsis, hypoalbuminemia (<3.5 mg/dl),

and small bowel procedures; and 3 points for esophagus procedures. The risk score ranged from 0-11 for our population with a median risk score for patients without and with ventilator dependence of 3 (IQR 3) and 5 (IQR 2), respectively. ROC analysis demonstrated fair predictability (AUC 0.78). Assigning a cut off value of 6 for the risk score identified the highest risk 10% of patients with a 7.4% ventilator dependence rate ($p < 0.01$). Conclusion: We have developed an institution-specific risk score that can be utilized in the preoperative setting to identify patients at highest risk for postoperative ventilator dependence and may derive the greatest benefit from aggressive preoperative pulmonary optimization.