Title

PC062. Inpatient Mortality and Payer Status for Open Abdominal Aortic Repair and Lower Extremity Bypass in the VQI

Permalink

Journal

ISSN

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Publication Date

DOI

Peer reviewed

serum albumin concentration <3.5 g/dL. The primary outcome was 30-day mortality. Secondary outcomes included (1) early major adverse events (MAE), defined as 30-day all-cause mortality, myocardial infarction, or cardiac arrest; (2) early respiratory complications, defined as 30-day pneumonia, need for reintubation, or failure to wean from the ventilator; and (3) 1-year mortality. Multivariable logistic regression models, adjusted for preoperative, intraoperative, and 30-day postoperative variables were used to evaluate associations. Interaction terms between hypoalbuminemia and type of aneurysm repair (endovascular or open) were evaluated to explore possible modification of the effect of hypoalbuminemia by repair type.

Results: A total of 7997 patients were included in the analysis, of which 1006 (12.6%) had hypoalbuminemia. There was no association between hypoalbuminemia and 30-day mortality on univariate (OR, 1.3; 95% CI, 0.82-2.11; $P = .246$) or multivariable analysis (OR, 1.1; 95% CI, 0.63-1.82; $P = .801$). Similarly, there was no statistically significant association between hypoalbuminemia and MAE on univariate (OR, 1.2; 95% CI, 0.78-1.73; $P = .458$), and subsequent multivariable analysis (OR, 0.9; 95% CI, 0.59-1.46; $P = .754$). Hypoalbuminemia was associated with an increased risk of respiratory complications (OR, 1.3; 95% CI, 1.06-1.72; $P = .016$) on univariate analysis. However, this association was lost after multivariable adjustment (OR, 1.1; 95% CI, 0.83-1.59; $P = .401$). Lastly, hypoalbuminemia was significantly associated with increased risk of 1-year mortality after AAA repair (OR, 2.2; 95% CI, 1.73-2.82; $P < .001$), an association that persisted after multivariable adjustment (OR, 2.1; 95% CI, 1.55-2.84; $P < .001$). Interactions terms between hypoalbuminemia and type of aneurysm repair were not significant statistically, indicating that the effect of hypoalbuminemia for each of the outcomes studied was independent of AAA treatment modality.

Conclusions: Hypoalbuminemia does not increase the risk of early MAE, respiratory complications, or mortality after elective AAA repair. However, it is associated with reduced 1-year survival regardless of AAA treatment modality.

Author Disclosures: A. Garcia: Nothing to disclose; **P. Kougias:** Nothing to disclose; **A. Pathak:** Nothing to disclose; **A. C. Salami:** Nothing to disclose; **S. Sharath:** Nothing to disclose.

PC060.

Clopidogrel Is Not Associated With Increased Risk of Bleeding Following Open Abdominal Aortic Aneurysm Repair

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Objectives: Despite the known benefits of antiplatelet therapy in vascular surgery patients, these medications, in particular clopidogrel, are often held during the perioperative period due to concern for increased risk of bleeding. We aim to study whether the use of antiplatelet therapy during the perioperative period for those undergoing open abdominal aortic aneurysm (oAAA) repairs is associated with increased bleeding risk.

Methods: Patients undergoing oAAA repairs in 136 hospitals between 2003 and 2015 were identified using the prospectively gathered Vascular Quality Initiative Registry. Those undergoing emergency operations or early (<30 days) conversions from endovascular abdominal aortic aneurysm repair were excluded. Outcomes of 3 propensity score-matched medication groups were compared using linear and logistic mixed models. End points included postoperative bleeding requiring return to the operating room, intraoperative blood loss, volume of blood transfusion, procedure time, and length of hospital stay.

Results: There were 4764 patients who underwent elective oAAA repair during the study interval. Of these, 1418 patients (29.8%) were not on any antiplatelet agents, 3000 (63.0%) were on aspirin (ASA) alone, and 346 (7.3%) were on clopidogrel with or without ASA (76% vs 24%) at least 36 hours before oAAA repair. From this cohort, we identified 323 propensity score-matched patients in the 3 medication groups. There were no differences in any outcome measures, including postoperative bleeding requiring return to the operating room (none, 2.5%; ASA, 2.2%; clopidogrel, 2.2%; P = .92), intraoperative blood loss (none ,1.9 L; ASA, 1.7 L; clopidogrel, 1.7 L; $P = .48$), average number of units of packed red blood cells transfused (none, 1.8 units; ASA, 1.5 units; clopidogrel, 1.5 units; $P = .48$), procedure time (none, 250 minutes; ASA, 246 minutes; clopidogrel, 254 minutes; $P = .69$), or length of hospital stay (none, 7 days; ASA, 7 days; clopidogrel, 7 days; $P = .91$). Patients in the no antiplatelet group tended to have higher rate of retroperitoneal exposure (none, 33.4%; ASA, 23.5%; clopidogrel, 29.0%; $P = .10$) and distal anastomosis to iliac or femoral arteries vs distal aorta (none, 60.8%; ASA, 52.6%; clopidogrel, 51.3%; $P = .19$), although neither were statistically significant.

Conclusions: Antiplatelet therapy has known benefits in vascular surgery patients, including those with recent coronary stent placement or carotid interventions. Continuing antiplatelet medications, including clopidogrel, during the perioperative period is not associated with significant increase in postoperative bleeding complications in those undergoing elective oAAA repairs.

Author Disclosures: J. F. Bena: Nothing to disclose; **D. Clair:** Boston Scientific: consulting fees (eg, advisory boards), contracted research, Endologix and Medtronic: consulting fees (eg, advisory boards); **K. Fong:** Nothing to disclose; **J. Kang:** Nothing to disclose; **R. Kelso:** Nothing to disclose; **C. Smolock:** Nothing to disclose.

PC062.

Inpatient Mortality and Payer Status for Open Abdominal Aortic Repair and Lower Extremity Bypass in the VQI

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Objectives: Claims-based data have demonstrated higher odds of inpatient mortality for bypass and aortic procedures for patients with Medicare and self-pay insurance. However, there are questions about the generalizability of this data, and it is unknown what impact the variance in

surgeon or hospital factors have on this outcome. Our objective was to assess the association between payer status and inpatient mortality using a large, multi-institutional vascular registry that permits clustering at the surgeon and hospital level for predictors of inpatient mortality.

Methods: VQI data for open abdominal aortic repair (oAAR), infrainguinal bypass (IB) and suprainguinal bypass (SB) procedures performed between January 2012 and July 2015 were retrospectively analyzed. Procedures with any missing data were excluded. Mixed-effects logistic regression analysis, with clustering at the surgeon and hospital level, was used to calculate the odds ratio (OR) with 95% confidence interval (CI) for in-hospital mortality by payer status adjusting for patient, operative, and postoperative characteristics. Sensitivity analysis assessed for interactions between payer type by race/ethnicity and age category.

Results: A total 19,219 procedures performed in 17,727 patients met the inclusion criteria (oAAR, 3132; IB, 11,812; SB, 4275). A total of 1175 procedures were excluded for missing data. Overall in-hospital mortality was 2.58% (n = 495; oAAR, 250; IB, 116; SI, 129). On univariate analysis, Medicaid (OR, 0.32; 95% CI, 0.19-0.53) and commercial (OR, 0.54; 95% CI, 0.44-0.16) insurance were associated with a significantly lower odds of in-hospital mortality compared to Medicare. On mixed-effects regression, adjusting for age, gender, race/ethnicity, preoperative ambulatory status, comorbidities, case urgency, total operative time, postoperative complication and procedure type, with random variation at the surgeon (n = 955) and hospital level (n = 197), there was no significant association between in-hospital death and payer status. The highest odds of death were associated with age > 75 (OR, 5.23; 95% CI, 2.95-9.27), > 4 comorbidities (OR, 2.57; 95% CI, 1.85-3.53), emergency case (OR, 6.21; 95% CI, 4.82-7.98), postoperative complication (OR, 28.09; 95% CI, 17.62-45.07), and oAAR (OR, 4.33; 95% CI, 3.24-5.76).

Conclusions: In contrast to previous studies, we found in-hospital mortality was not associated with insurance status after clustering by surgeon- and hospital-level variables in a large, generalizable data registry. The highest odds of death are conferred by age > 75, having > 4 comorbidities, emergency case, postoperative complication, and oAAE. Insurance is an important marker of access to care but not predictive of hospital mortality.

Author Disclosures: M. Maggard-Gibbons: Nothing to disclose; **D. Rigberg:** Nothing to disclose; **C. Tseng:** Nothing to disclose; **J. G. Ulloa:** Nothing to disclose; **K. Woo:** Nothing to disclose.

PC064.

Incidence of and Risk Factors for Bowel Ischemia Following Abdominal Aortic Aneurysm Repair

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Objectives: Bowel ischemia is a rare but devastating complication after abdominal aortic aneurysm (AAA) repair. The purpose of this study is to assess the incidence of postoperative bowel ischemia after AAA repair in the endovascular era and identify risk factors for its occurrence.

Methods: Patients undergoing repair of intact or ruptured AAA in the Vascular Study Group of New England between January 2003 and November 2014 were included. We compared patients with postoperative bowel ischemia to those without, and stratified by indication (intact and ruptured) and treatment approach (open repair and EVAR). Independent predictors of postoperative bowel ischemia were established using multivariable logistic regression analysis.

Results: A total of 7312 patients were included, with 6668 intact (67.0% EVAR), and 644 ruptured AAA repairs (31.5% EVAR). The incidence of bowel ischemia after intact repair was 1.6% (open repair: 3.6%, EVAR: 0.6%), and 15.2% after ruptured repair (open repair: 19.3%, EVAR: 6.4%). Ruptured AAA was the most important determinant of postoperative bowel ischemia (OR, 6.4; 95% CI, 4.5-9.0). Open repair was also associated with a higher risk of bowel ischemia compared to EVAR (OR, 2.9; 95% CI, 1.8-4.7). Additional predictive patient factors were advanced age (OR, 1.4 per 10 years; 95% CI, 1.1-1.7), female gender (OR, 1.6; 95% CI, 1.1-2.2), hypertension (OR, 1.8; 95% CI, 1.1-3.0), heart failure (OR, 1.8; 95% CI, 1.2-2.8), and current smoking (OR, 1.5; 95% CI, 1.1-2.1). Other risk factors included interruption of the hypogastric artery (OR, 1.7; 95% CI, 1.0-2.8), prolonged operative time (OR, 1.2 per 60-minute increase; 95% CI, 1.1-1.3), blood loss >1 L (OR, 2.0; 95% CI, 1.3-3.0), and a distal anastomosis to the femoral artery (OR, 1.7; 95% CI, 1.1-2.7). Bowel ischemia patients had a significantly higher perioperative mortality after intact (open repair: 20.5% vs 1.9%; P < .001; EVAR: 34.6% vs 0.9%; P < .001) and ruptured AAA repair (open repair: 48.2% vs 25.6%; P < .001; EVAR: 30.8% vs 21.1%; P < .001).

Conclusions: This study underlines that although bowel ischemia after AAA repair is rare, the associated outcome is very poor. The cause of postoperative bowel ischemia is multifactorial in nature and can be attributed to patient factors and operative characteristics. Knowledge of these risk factors may provide important information for perioperative planning in an effort to decrease the incidence of bowel ischemia and its associated morbidity and mortality.

Author Disclosures: D. J. Bertges: Nothing to disclose; **J. D. Darling:** Nothing to disclose; **M. L. Schermerhorn:** AnGes, Cordis, Endologix: consulting fees (eg, advisory boards), Abbott, Boston Scientific, Cook Medical, W. L. Gore, Medtronic, and Philips: contracted research; **P. A. Soden:** Nothing to disclose; **K. H. J. Ultee:** Nothing to disclose; **H. Verhagen:** Endologix and Medtronic: consulting fees (eg, advisory boards), Philips: speaker's bureau; **S. L. Zettervall:** Nothing to disclose.