Abstracts

Postoperative Renal Dysfunction Independently Predicts Late Mortality in Patients Undergoing Aortic Reconstruction

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Objectives: Preoperative chronic kidney disease (CKD) has been shown to predict postoperative renal complications and late survival following aortic surgery, whereas the impact of postoperative renal complications less severe than permanent dialysis are unknown. We evaluated the effects of increasingly severe postoperative renal dysfunction on survival using a regional quality improvement registry.

Methods: Patients undergoing intact open aortic reconstruction in the Vascular Study Group of New England registry (2003-2012) were stratified by severity of postoperative renal complications: none, creatinine increase >0.5 mg/dL (IncCr), or any dialysis (HD). Predictors of renal dysfunction and impact of renal complications on survival were analyzed using multivariable methods.

Results: A total of 2095 patients were included, of which 72% had open abdominal aortic aneurysm repair, and 28% open aortic reconstruction. Of these, 15% of patients had moderate CKD, and 1.2% had severe CKD at baseline. Postoperative renal complications were none in 90%, IncCr in 8.6%, and HD in 1.6%. Multivariable cumulogen regression identified moderate CKD (odds ratio [OR], 4.7; 95% confidence interval [CI], 1.8-9.9; P < .01), severe CKD (OR, 17; 95% CI, 7-41; P < .01), operating room time (OR, 1.004 minutes; 95% CI, 1.003-1.006; P < .01), and suprarenal clamp use (OR, 2; 95% CI, 1.4-2.9; P < .01) as independent predictors of worsening strata of postoperative renal dysfunction. Risk-adjusted multivariable Cox regression showed that IncCr (hazard ratio, 1.6; 95% CI, 1.1-2.3; P = .01) and HD (hazard ratio, 3.2; 95% CI, 1.8-5.7; P < .01) increased risk of late death independent of age, gender, baseline moderate or severe CKD, congestive heart failure, chronic obstructive pulmonary disease, and postoperative myocardial infarction or death. Five-year survival was lower (log rank P < .01) in patients with IncCr (71% ± 4%), and HD (29% ± 10%) compared with those with none (% ± 1%, Fig).

Conclusions: Increasing severity of postoperative renal dysfunction independently predicts increased risk of late mortality after open aortic surgery. Perioperative measures to reduce renal complications may potentially prolong the survival of patients following open aortic surgery.

Stroke or death

<table>
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<tr>
<th>Symptomatic</th>
<th>Asymptomatic</th>
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<tr>
<td>Normal risk</td>
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<tr>
<td>CAS 0.0% 0.0% 4.7% 7.9% 0.0% 0.0% 6.3% 7.9%</td>
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<tr>
<td>CEA 0.6% 1.3% 1.8% 1.8% 0.0% 0.0% 1.8% 2.9%</td>
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<td>P value .36 .33 &lt;.01 &lt;.01 .15 .17 &lt;.01 .02</td>
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CAS, Carotid artery stenting; CEA, carotid endarterectomy.

Racial Disparity in Hemodialysis Access Types in Patients with End-Stage Renal Disease: An Analysis of the United States Renal Database System

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Objectives: To examine racial and ethnic influences on hemodialysis initiation modes with arteriovenous fistula (AVF), arteriovenous graft (AVG), and intravenous hemodialysis (HD) in patients with end-stage renal disease (ESRD).

Methods: A retrospective analysis of a prospectively collected database comprising all ESRD patients receiving renal replacement therapy maintained by the United States Renal Database System between 2006 and 2010 was performed with institutional review board approval. χ2 tests and analysis of variance provided descriptive statistics.

Results: Examined were 2,577,166 ESRD patients. We excluded all patients with IHC, AVF, or AVG prior to 2006, those not classified as white, black, or Hispanic, and patients with prior kidney transplants. Patients totaling 482,988 were included, of whom 82.7% initiated HD via IHC versus 13.9% via AVF and 3.4% via AVG. White patients were older (65.9 years) at initiation than black (58.4 years) and Hispanic (58.0 years) patients (P < .001). Black patients were more likely to be female (48.1%) than white (41.2%). Hispanic (42.9%) patients (P < .001). HD initiation with AVF was more common among white patients (15.2%) than black (12.5%) or Hispanic (11.8%) patients, whereas AVG was more common among black patients (4.9%) than white (2.9%) or Hispanic (2.6%) patients (P < .001; Table).

Conclusions: White ESRD patients initiate HD with AVF more frequently than black or Hispanic patients. This disparity between white and black patients derives not from procedure rate, but rather from conduit selection. Black patients receive AVG two-thirds more frequently, while undergoing surgery at clinically similar rates. Hispanic patients receive fewer fistulas and grafts, as well as more catheters, in comparison to the other.

Outcome of Carotid Endarterectomy Versus Stenting in Comparable Medical Risk Patients

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Objectives: In medically high-risk patients, the choice between carotid artery stenting (CAS) and carotid endarterectomy (CEA) can be difficult. The purpose of this study was to compare risk-stratified outcomes of CAS and CEA.