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46

Impact Of Preoperative Hemoglobina1c In Patients Undergoing Open Distal Vascular Procedures

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Objective: The purpose of this study was to evaluate if preoperative hemoglobin (Hb) A1c levels was associated with worse outcomes in patients undergoing open lower extremity (LE) revascularization.

Methods: A retrospective review of a statewide vascular surgery registry was queried for all patients who underwent open infrainguinal bypass or open LE thrombectomy procedures between January 2014 and June 2021. Patients were categorized into four groups depending on whether their plasma HbA1c was ≤6%, >6% to ≤8%, >8% to ≤10%, and >10%. Regression models were used to evaluate the association between preoperative HbA1c and postoperative major adverse limb events (MALE), major adverse cardiac events (MACE), mortality, and length of stay (LOS).

Results: A total of 5388 patients were included in the study. The average age was 66 years. Sixty-six percent of the cohort were male, and 78% were white. Demographics and comorbidities were associated with the HbA1c level. Mean LOS was 7 days for HbA1c <6% and 10 days for HbA1c >10% ($P < .001$). No significant association was found when looking at perioperative MALE, MACE, 30-day mortality, or 1-year mortality. On multivariate analysis, only LOS remained significantly associated with the level of HbA1c ($P < .001$) (Table).

Conclusions: Suboptimal preoperative glycemic control in patients undergoing open LE vascular procedures for ischemia is associated with an increased risk of LOS. HbA1c level was not predictive of worse perioperative MACE, MALE, or mortality in this cohort. The increased in LOS could be explained by unmeasured complications, frailty, or increased hospitalization time needed to optimize glycemic control before discharge.

Table. Multivariate analyses for length of stay, perioperative major adverse limb events (*MALE*), perioperative major adverse cardiac events (*MACE*), and 30-day mortality based on preoperative hemoglobin (*Hb*) A1c level

Predictors	OR	95% CI	*P*
Postoperative MACE			
HbA1c <6%	1		
HbA1c >6% to ≤8%	1.18	0.90-1.56	.23
HbA1c >8% to ≤10%	1.01	0.69-1.48	.97
HbA1c >10%	0.84	0.50-1.40	.49
Post-operative MALE	**OR**	**95% CI**	***P***
HbA1c <6%	1		
HbA1c >6% to ≤8%	1.23	0.79-1.90	.35
HbA1c >8% to ≤10%	1.75	1.03-3.00	.04
HbA1c >10%	1.40	0.74-2.65	.30
Total LOS	**IRR**	**95% CI**	***P***
HbA1c <6%	1		
HbA1c >6% to ≤8%	1.21	1.18-1.24	<.01
HbA1c >8% to ≤10%	1.26	1.22-1.30	<.01
HbA1c >10%	1.20	1.15-1.24	<.01
30-day mortality	**OR**	**95% CI**	***P***
HbA1c <6%	1		
HbA1c >6% to ≤8%	0.91	0.59-1.41	.69
HbA1c >8% to ≤10%	0.91	0.50-1.64	.75
HbA1c >10%	0.72	0.32-1.61	.43

CI, Confidence interval; *IRR*, incidence rate ratio; *OR*, odds ratio.

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47

Renal Recovery In Patients With Type B Aortic Dissections Who Underwent Aortic Stent Placement: A Retrospective Review

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Objective: The objective of this study was to demonstrate intervening in the subacute period of type B aortic dissection for indications of renal failure/insufficiency is a safe and effective treatment.

Methods: This is a single-center retrospective review of 46 patients who received treatment for descending thoracic aortic pathology including both dissections and aneurysms from 2016 to 2022. Of those patients, seven were found to have acute renal insufficiency or failure as one of the indications for endovascular aortic intervention. Patient demographics are noted in Table I. The creatinine and glomerular filtration rate for these patients were trended from the time of dissection until initial renal recovery and return to baseline or new baseline. The seven patients were classified into four categories based on their time to intervention from initial presentation: hyperacute, acute, subacute, and chronic according to the Society for Vascular Surgery/Society of Thoracic Surgeons (SVS/STS) guidelines.

Results: Of the seven patients, one had an intervention in the hyperacute, three in the acute, two in the subacute, and one in the chronic period. Acute renal failure was an indication for intervention in five of the patients, and renal insufficiency was an indication in the other two. Complete renal recovery to baseline was achieved in four of seven patients. Renal recovery to a new lower baseline was achieved in two of seven patients. One patient became dialysis-dependent. Covered stent grafts were used in six of seven patients. A dissection endovascular stent was used in all seven patients. Further characterization of renal recovery is summarized in Table II.

Conclusions: Intervening in the subacute period with evidence of renal malperfusion is a safe and effective strategy for repair. All patients in the subacute treatment group experienced renal recovery back to baseline and at a faster rate than intervention in either the hyperacute or acute groups. Treatment in the subacute period is recommended for patients with acute type B dissection and renal injury if no other indication warrants more urgent intervention. Subacute intervention reduces the risks associated with the highly dynamic pathology of renal insufficiency after dissection and produces similar if not better outcomes in the treatment

Table I. Demographics

	No. patients
Age 50-70 years	6
Age >70 years	1
Male	4
Female	3
Tobacco history	3
Hypertension	7
Chronic kidney disease	0
Diabetes	1
Vascular disease	1

Table II. Comparison of renal recovery across all groups

	Rate of complete renal recovery	Average time to initial renal recovery, days	Average time to complete/partial renal recovery, days
Hyperacute	1/1	9	14
Acute	0/3	1	10.5
Subacute	2/2	0	2
Chronic	1/1	0	1