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Introduction:

- Though endovascular approaches to repairing abdominal aortic aneurysms have expanded, open aneurysm repair is still considered the gold-standard
- Open repair is technically more complex and carries higher risk of morbidity and mortality
- Objective: Evaluate the real-world outcomes of open juxta-renal abdominal aortic aneurysm repair

Methods:

- NSQIP vascular-targeted dataset for abdominal aortic aneurysm, merged with regular NSQIP adult dataset, from 2017- 2020,
- Juxta-renal proximal aneurysm extent
- Identified patients that expired peri-operatively Pre-, intra-, and post-operative characteristics were analyzed
- Bivariate analysis was performed to assess characteristics by peri-operative mortality
- Multivariate logistic regression performed for variables with a p-value < 0.2.

Results:

Table 1: Prognostic Factors for Mortality

Mortality	OR	SE	P-value	95% CI
Age > 65 y. o	2.816	1.324	0.028*	1.121 - 7.077
BMI>40 kg/m ²	0.330	0.394	0.354	0.032 - 3.439
Pre-operative blood transfusion	2.703	1.483	0.070	0.922 - 7.920
Pre-operative SIRS, sepsis, septic shock	0.764	0.381	0.590	0.287 - 2.032
Abdominal non-arterial repair or excision	0.423	0.392	0.354	0.069 - 2.604
ASA class				
3-Severe Disturb	Reference			
4-Life Threat	2.111	0.960	0.100	0.866 - 5.145
5-Moribund	1.310	0.884	0.689	0.349 - 4.920
Proximal clamp location				
Infrarenal	Reference			
Above one renal	0.622	0.309	0.339	0.235 - 1.647
Between SMA & renals	1.156	0.597	0.779	0.420 - 3.179
Supraceliac	1.310	0.667	0.596	0.483 - 3.554
Operation characteristics				
Non-elective	0.596	0.364	0.397	0.180 - 1.973
Total time of operation > 280 minutes	2.676	0.924	0.004*	1.360 - 5.265
Indication for Surgery				
Diameter	Reference			
Non-ruptured symptomatic	0.707	0.636	0.700	0.121 - 4.119
Other indication for surgery	3.525	4.396	0.312	0.306 - 40.630
Prior endovascular intervention w/ unsatisfactory result	0.809	0.922	0.853	0.087 - 7.541
Rupture w/ hypotension or use of pressors	8.129	6.230	0.006*	1.810 - 36.513
Rupture w/out hypotension	4.574	3.315	0.036*	1.105 - 18.932
Concomitant Revascularization				
Lower extremity revascularization	1.782	0.960	0.283	0.620 - 5.123
Renal Revascularization	0.439	0.336	0.282	0.098 - 1.967
Post-op occurrence				
Ischemic colitis	3.826	1.868	0.006*	1.469 - 9.964
Rupture of aneurysm	11.038	8.297	0.001*	2.530 - 48.159
LE ischemia requiring intervention	1.188	0.999	0.837	0.229 - 6.177

* p < 0.02 on multivariate analysis
Indications for surgery other than diameter were considered as one characteristic and had a p< 0.02 on bivariate analysis
Characteristics not associated with mortality included gender, race, medical comorbidities except for hypertension, and renal/visceral revascularization

Results (cont):

- 557 patients identified
 - 60 peri-operative deaths
- Predictors of death
 - Older age
 - Longer operative time
 - Presenting with rupture
- Post-operative ischemic colitis had significant mortality risk
 - 32 total patients
 - 14 deaths
- **15% of deaths due to post-operative aneurysm rupture**
 - 13 post-operative ruptures
 - 9 deaths

Conclusion:

- Older patients, longer cases, and patients presenting with rupture have a higher risk of peri-operative mortality after open repair
- Open aneurysm repair still confers a significant post-operative rupture risk
- Further research is needed to determine why such a high post-operative rupture rate has been observed