Factors Associated with High Cost in Type A Aortic Dissection Repair

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Objective

- Patients presenting with acute type A aortic dissection require urgent, resource-intensive interventions, and there is significant variation in cost of caring for these patients.
- The purpose of this study was to identify the preoperative and operative factors that contribute to high healthcare costs in patients undergoing surgical management for type A aortic dissection.

Methods – Population and Data

- Single institution, from 2017-2022
- Urgent or emergent type A aortic dissection
- Clinical data obtained from STS Adult Cardiac Surgery Database
- Financial data obtained from hospital records

Methods - Analysis

- Patients grouped by total index encounter cost
  - Standard cost group: ≤70th percentile
  - High cost group: >70th percentile
- Multivariable logistic regression was used to compare demographics, comorbidities, presentation factors such as malperfusion, operative characteristics, and clinical outcomes between groups

Results

- 105 patients included in the study
  - 32 high cost ($132,084 median total encounter cost)
  - 73 standard cost ($46,234 median total encounter cost)

Results (cont.)

Table 1. Type A Aortic Dissection Presentation Factors, by Cost Group.

Variables	High Cost (N=32)	Standard Cost (N=73)	P-value
Age ≥60	16 (50.0%)	32 (43.8%)	0.56
Male sex	27 (84.4%)	42 (57.5%)	0.01
Black/non-White	17 (53.1%)	39 (53.4%)	0.98
Obesity	10 (31.3%)	27 (37.0%)	0.57
Heart failure	15 (46.9%)	23 (31.5%)	0.13
Prior myocardial infarction	5 (15.6%)	8 (11.0%)	0.53
Malperfusion	15 (46.9%)	23 (31.5%)	0.13
Aortic rupture	10 (31.3%)	17 (23.3%)	0.39
Lower extremity weakness or paralysis	6 (18.8%)	8 (11.0%)	0.28
Required total arch repair	9 (28.1%)	5 (6.9%)	0.01
Required Bentall procedure	10 (31.3%)	7 (9.6%)	0.01

Results (cont.)

Associated with High Cost

- Male sex
- Aortic root involvement
- Aortic arch involvement
- Increased blood product usage
- Postoperative complications

Not associated with High Cost

- Malperfusion
- Aortic rupture
- Lower extremity neurologic deficits

Results (cont.)

- Post-discharge costs are also expected to be higher as high cost patients were significantly more likely to be have a disposition other than “home”

Conclusions

- Management of acute type A aortic dissection requires extensive resources
- Surprisingly, presenting with malperfusion, rupture, or lower extremity neurological deficits was not associated with increased cost
- While more extensive repair is sometimes necessary in acute type A dissection, based on this study, it appears financially and clinically beneficial to limit surgery to relatively more straightforward procedures such as an ascending aorta/aortic hemiarch repair whenever possible