

Improving Outcomes In Acute Type A Aortic Dissection: The Impact Of An On-call Specialist Aortic Rota In Outcomes And Repair Complexity

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Objective

- Acute Type A Aortic Dissection (ATAD) repair is a complex and high-risk procedure, often associated with a significant in-hospital mortality and morbidity rate
- We sought to evaluate the impact of implementing an On-Call Specialist Aortic Rota within our department on the outcomes of ATAD repair

Methods

- **Between January 2015 and October 2023, a total of 406 ATAD surgical repairs were performed in our institution**
- **In September 2020, an On-call Specialist Aortic Rota was introduced, which required surgeons to have a minimum of:**
 - 10 major elective aortic cases per year
 - 4 ATAD repair cases per year
- **We compared outcomes of patients between the two periods of time:**
 - Pre On-Call Specialist Aortic Rota group (Group A)
 - Post On-Call Specialist Aortic Rota group (Group B)

Results

- There were no significant differences in preoperative patient characteristics between the two groups
- Mean age was 59 years (18-89), and 68% of the patients were male
- In the total cohort: 16% (68) was presented with tamponade symptomatology, and 6% (24) intubated, moderate or severe aortic regurgitation was present in 32% (130) of total patients

Preop Characteristics	Total n=406	Pre Rota (A) n=236	Post Rota (B) n=170	p value
Male sex	276 (68%)	161 (68%)	115 (67%)	0.902
Age (y)	59.8 (14)	59.8 (15)	59.8 (13)	0.495
HTN	323 (79%)	184 (78%)	139 (81%)	0.349
DM	34 (8%)	19 (8%)	15 (8%)	0.781
COPD	20 (5%)	12 (5%)	8 (4.7%)	0.861
Tamponade	68 (16%)	39 (16%)	29(17%)	0.887
Intubated	24 (6%)	16 (6%)	8 (4%)	0.382
AR ≥Mod/Severe	130 (32%)	81 (34%)	49 (28%)	0.240

*HTN= Hypertension, DM= Diabetes mellitus, COPD= Chronic obstructive pulmonary disease, AR=Aortic regurgitation
 Continuous variables shown as mean (standard deviation)
 Categorical variables shown as number and frequency (%)*

Results

- The overall in-hospital mortality rate was 21.6% (88/406)
- Notably, a significant decrease in mortality was observed in the post On-Call Specialist Aortic Rota group (B), with a rate of 16.4% (28/170) compared to 25.4% (60/236) in the pre On-Call Specialist Aortic Rota group (A) (p-value = 0.03)
- There were no significant differences in postoperative complications between the two groups, but lower incidence of permanent stroke (11% vs 15%), tracheostomy (14% vs 20%), and temporary dialysis (25% vs 31%) were observed in post On-Call specialist Rota group B, respectively

Outcomes	Total n=406	Pre Rota (A) n=236	Post Rota (B) n=170	p value
In-hospital mortality	88 (21.6%)	60 (25%)	28 (16%)	0.037
Intraoperative mortality	30 (7%)	21 (9%)	9 (5%)	0.178
Postoperative permanent stroke	55 (13%)	36 (15%)	19 (11%)	0.236
Tracheostomy	72 (17%)	47 (20%)	25 (14%)	0.175
Temporary dialysis	117 (28%)	74 (31%)	43 (25%)	0.183

Categorical variables shown as number and frequency (%)

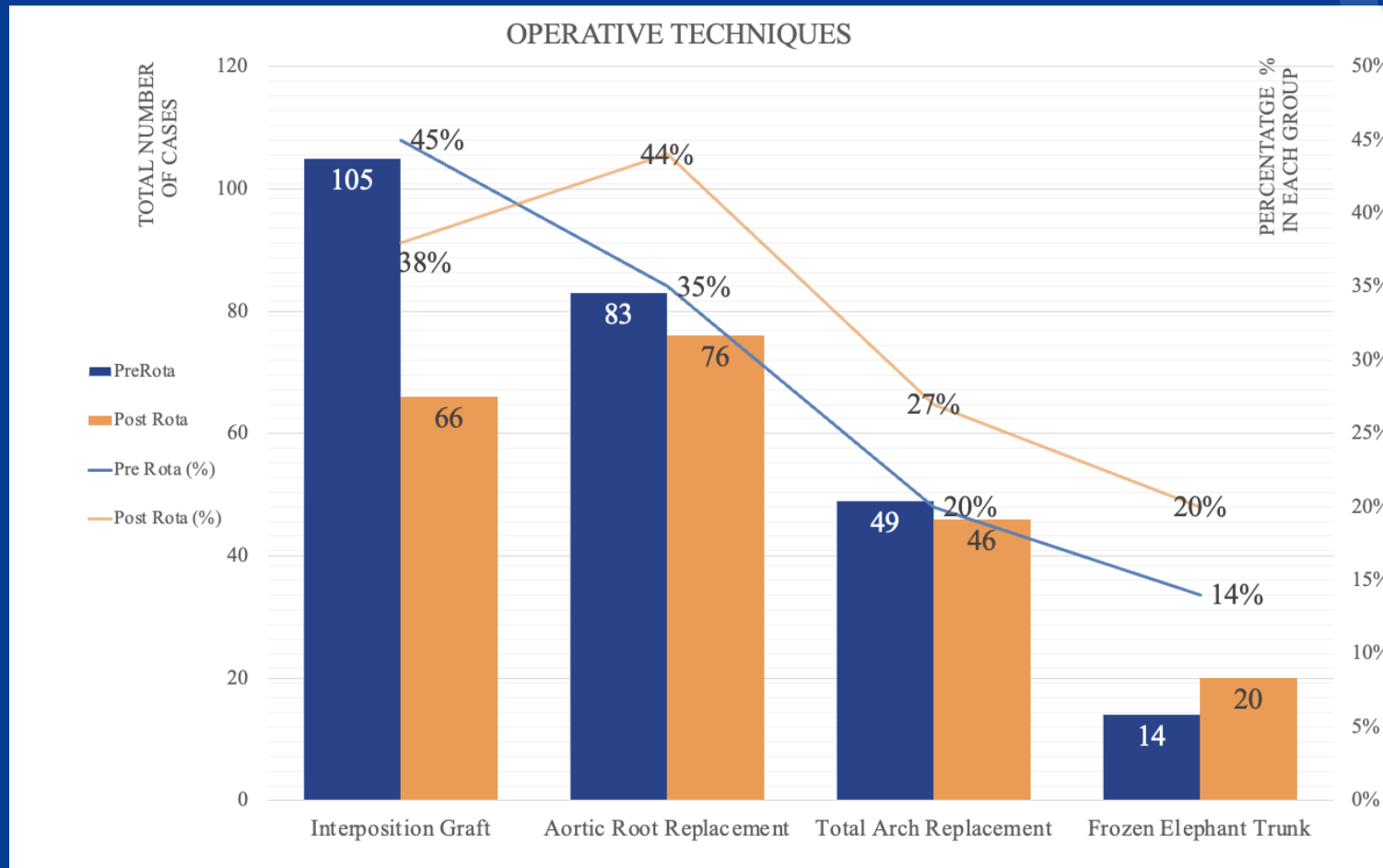
Results

- No significant differences in operative techniques were observed, but a trend toward more complex repair was noted since introduction of On-call Specialist Aortic Rota
- Consequently, longer cardiopulmonary bypass (CPB), cross-clamp, and circulatory arrest times were observed in Group B

Operative techniques	Total n=406	Pre Rota (A) n=236	Post Rota (B) n=170	p value
Aortic root replacement	159 (39%)	83 (35%)	76 (44%)	0.052
Total arch replacement	95 (23%)	49 (20%)	46 (27%)	0.139
Frozen elephant trunk	69 (17%)	35 (14%)	34 (20%)	0.171
Ascending aorta replacement	171 (42%)	105 (45%)	66 (38%)	0.234
CPB time (min)	269 (193-325)	259 (183-310)	284 (214-333)	0.026
Cross-Clamp time (min)	154 (102-190)	147 (95-185)	164 (114-197)	0.032
CA time (min)	55 (27-65)	53 (25-59)	58 (30-77)	0.208

CPB = Cardio-Pulmonary Bypass, CA= Cardiac arrest
 Continuous variables shown as mean (percentile 25-75)
 Categorical variables shown as number and frequency (%)

Results



Conclusions

- **The implementation of an On-call Specialist Aortic Rota for the surgical treatment of Acute Type A Aortic Dissection had a positive impact on in-hospital mortality and morbidity**
- **Additionally, there was a trend towards more complex and extensive aortic repairs following the introduction of the Specialist Aortic Rota**