

Table S1 Demographic data of the propensity score matched cohort

Variables	ATAAD	Non-ATAAD	P value	STAAD	CTAAD	P value
Number of patients (case)	215	215		71	71	
Gender, male	73 (157/215)	71.2 (153/215)	0.67	67.6 (48/71)	73.2 (52/71)	0.46
Age (years)	48.0 (41.0–55.0)	48.0 (38.0–57.0)	0.69	48.5±11.9	47.3±13.6	0.57
Systolic pressure (mmHg)	128.0 (116.0–135.0)	125.0 (115.0–132.0)	0.08	125.0 (115.0–133.0)	125.0 (117.0–131.0)	0.96
Diastolic pressure (mmHg)	70.0 (59.0–79.0)	70.0 (63.0–79.0)	0.47	70.0 (62.0–80.0)	70.0 (63.0–78.0)	0.97
Hypertension	59.1 (127/215)	52.1 (112/215)	0.15	56.3 (40/71)	50.7 (36/71)	0.50
Diabetes	2.3 (5/215)	3.3 (7/215)	0.56	4.2 (3/71)	4.2 (3/71)	>0.99
Respiratory disease	0.5 (1/215)	1.4 (3/215)	0.62	1.4 (1/71)	0 (0/71)	>0.99
Smoking history	39.5 (85/215)	35.8 (77/215)	0.43	32.4 (23/71)	29.6 (21/71)	0.72
Coronary artery bypass grafting history	0	0	>0.99	0 (0/71)	0 (0/71)	NA
Valvular surgery history	0.5 (1/215)	2.8 (6/215)	0.12	5.6 (4/71)	1.4 (1/71)	0.37
TEVAR surgery history	3.3 (7/215)	3.3 (7/215)	>0.99	4.2 (3/71)	4.2 (3/71)	>0.99
PCI surgery history	0.5 (1/215)	1.4 (3/215)	0.62	1.4 (1/71)	0 (0/71)	>0.99
Cerebral infarction history	2.8 (6/215)	4.2 (9/215)	0.43	1.4 (1/71)	7.0 (5/71)	0.21
Marfan syndrome	2.3 (5/215)	2.8 (6/215)	0.76	2.8 (2/71)	4.2 (3/71)	>0.99
Aortic sinus diameter (mm)	41.0 (37.0–46.0)	40.0 (36.0–48.0)	0.45	40.0 (36.0–48.0)	41.0 (34.5–50.5)	0.67
Left atrial diameter (mm)	35.2±6.8	36.65±6.96	0.14	37.0 (31.0–40.0)	36.5 (32.3–43.0)	0.58
Aortic stenosis	1.2 (2/172)	1.2 (2/172)	>0.99	1.8 (1/55)	0 (0/56)	0.50
Mitral stenosis	0.6 (1/169)	1.2 (2/172)	>0.99	0 (0/55)	1.8 (1/56)	>0.99
Bicuspid aortic valve	3.6 (6/169)	1.7 (3/172)	0.33	1.8 (1/55)	1.8 (1/56)	>0.99
Pericardial effusion			0.09			0.13
Small	9.5 (16/169)	19.2 (33/172)		21.8 (12/55)	8.9 (5/56)	
Moderate	5.3 (9/169)	4.7 (8/172)		5.5 (3/55)	3.6 (2/56)	
Large	1.5 (1/67)	1.4 (1/71)		0 (0/55)	0 (0/56)	
HDL (mmol/L)	0.9±0.4	0.98±0.28	0.13	0.9 (0.8–1.0)	1.0 (0.8–1.1)	0.14
LDL (mmol/L)	2.4±1.1	2.7±0.8	0.17	2.7±0.7	2.6±0.8	0.51
Total cholesterol (mmol/L)	4.0±1.4	4.3±1.0	0.43	4.1 (3.6–5.0)	4.0 (3.6–4.8)	0.59
ALT (U/L)	21.0 (15.0–36.3)	20.0 (14.0–33.0)	0.27	20.0 (14.0–31.0)	19.5 (13.0–31.8)	0.77

The categorical variables in the table are presented as percentage (number of cases) and the continuous variables are expressed as median (interquartile range) or mean ± standard deviation. ALT, alanine aminotransferase; ATAAD, acute type A aortic dissection; CTAAD, chronic type A aortic dissection; HDL, high-density lipoprotein; LDL, low-density lipoprotein; NA, not applicable; PCI, percutaneous coronary intervention; STAAD, subacute type A aortic dissection; TEVAR, thoracic endovascular aortic repair.

Table S2 First Symptom of the propensity score matched cohort

Variables	ATAAD	Non-ATAAD	P value	STAAD	CTAAD	P value
Number of patients (case)	215	215		71	71	
Sudden pain	78.6 (169/215)	58.9 (126/215)	<0.001	60.6 (43/71)	52.1 (37/71)	0.40
Numbness of limbs	7.4 (1/215)	1.9 (4/215)	0.006	5.6 (4/71)	0 (0/71)	0.12
Vomiting	7.0 (15/215)	3.7 (8/215)	0.13	7.0 (5/71)	4.2 (3/71)	0.72
Nausea	11.6 (25/215)	4.2 (9/215)	0.004	7.0 (5/71)	4.2 (3/71)	0.72
Sweating	19.1 (41/215)	12.6 (27/215)	0.06	12.7 (9/71)	12.7 (9/71)	>0.99
Palpitations	0 (0/215)	2.8 (6/215)	0.02	0 (0/71)	2.8 (2/71)	0.50
Dizziness	5.6 (12/215)	2.3 (5/215)	0.08	2.8 (2/71)	1.4 (1/71)	>0.99
Headache	3.3 (7/215)	0.5 (1/215)	0.03	1.4 (1/71)	0 (0/71)	>0.99
Syncope	0.5 (1/215)	0.5 (1/215)	0.75	1.4 (1/71)	0 (0/71)	>0.99
Chest tightness	8.4 (18/215)	20.5 (44/215)	<0.001	21.1 (15/71)	19.7 (14/71)	>0.99
Shortness of breath	4.7 (10/215)	6.5 (14/215)	0.40	9.9 (7/71)	2.8 (2/71)	0.17
Chest pain	26.0 (56/215)	17.7 (38/215)	0.04	21.1 (15/71)	18.3 (13/71)	0.83
Chest and back pain	46.0 (99/215)	33.5 (72/215)	0.008	32.4 (23/71)	26.8 (19/71)	0.58
Back pain	3.3 (7/215)	2.3 (5/215)	0.56	1.4 (1/71)	2.8 (2/71)	>0.99
Limb pain	2.3 (5/215)	0.9 (2/215)	0.45	1.4 (1/71)	1.4 (1/71)	>0.99
Symptoms of organ ischemia	10.2 (22/215)	2.8 (6/215)	0.002	8.5 (6/71)	0 (0/71)	0.03

The categorical variables in the table are presented as percentage (number of cases). ATAAD, acute type A aortic dissection; CTAAD, chronic type A aortic dissection; STAAD, subacute type A aortic dissection. ATAAD, acute type A aortic dissection; STAAD, subacute type A aortic dissection; CTAAD, chronic type A aortic dissection.

Table S3 Intraoperative variables of the propensity score matched cohort

Variables	ATAAD	Non-ATAAD	P value	STAAD	CTAAD	P value
Number of patients (case)	215	215		71	71	
Ascending aorta replacement	22.4 (48/215)	15.9 (34/215)	0.09	11.4 (8/70)	14.1 (10/71)	0.80
Aortic root replacement	45.8 (98/215)	44.2 (95/215)	0.74	47.9 (34/71)	43.7 (31/71)	0.74
Wheat surgery	0 (0/215)	0.5 (1/215)	NA	1.4 (1/71)	0 (0/71)	NA
David surgery	0 (0/215)	0 (0/215)	NA	0 (0/71)	0 (0/71)	NA
Partial aortic arch replacement	3.3 (7/215)	12.6 (27/215)	0.001	18.3 (13/71)	11.3 (8/71)	0.25
Sun's surgery	78.6 (169/215)	56.3 (121/215)	<0.001	57.7 (41/71)	50.7 (36/71)	0.50
Surgery with CABG	5.6 (12/215)	6.6 (14/215)	0.66	8.6 (6/70)	4.3 (3/70)	0.49
Surgery with MVR	1.9 (4/215)	4.2 (9/215)	0.26	4.2 (3/71)	5.6 (4/71)	>0.99
Surgery with TVP	0.5 (1/215)	1.4 (3/215)	0.62	0 (0/71)	2.8 (2/71)	NA
Cephalic vascular bypass	10.7 (23/215)	9.8 (21/215)	0.75	14.1 (10/71)	2.8 (2/71)	0.03
CPB time (min)	205.0 (174.0–245.0)	174.50 (140.75–206.5)	<0.001	177.5 (145.0–213.3)	175.0 (137.0–202.0)	0.22
Aortic cross-clamp time (min)	115.0 (93.0–143.0)	92.0 (73.0–118.0)	<0.001	97.0 (80.8–118.5)	90.0 (74.5–121.3)	0.31
Operative duration (hours)	7.8 (7.0–9.0)	6.7 (5.6–8.0)	<0.001	6.6 (5.7–8.3)	6.5 (5.3–8.1)	0.63
Nasopharyngeal temperature during CPB (°C)	23.9 (22.9–24.5)	24.5 (23.1–25.0)	0.009	24.0 (22.5–25.0)	24.4 (23.0–29.5)	0.15
Anal temperature during CPB (°C)	25.3 (24.2–26.1)	25.8 (24.8–27.8)	0.003	25.4 (24.6–27.0)	26.5 (24.7–30.6)	0.04

The categorical variables in the table are presented as percentage (number of cases) and the continuous variables are expressed as median (interquartile range). ATAAD, acute type A aortic dissection; CABG, coronary artery bypass graft; CPB, cardiopulmonary bypass; CTAAD, chronic type A aortic dissection; MVR, mitral valve replacement; NA, not applicable; STAAD, subacute type A aortic dissection; TVP, tricuspid valvuloplasty.

Table S4 In-hospital outcomes of the propensity score matched cohort

Variables	ATAAD	Non-ATAAD	P value	STAAD	CTAAD	P value
Number of patients (case)	215	215		71	71	
ICU stays (days)	2.5 (1.3–5.5)	1.3 (0.9–3.0)	<0.001	1.4 (0.9–3.1)	1.6 (1.1–3.0)	0.24
Ventilation time (hours)	70.5 (32.0–157.5)	41.0 (26.0–84.0)	0.002	42.0 (26.0–98.0)	44.0 (34.0–84.0)	0.56
Hospitalization days (days)	13.0 (9.0–17.0)	16.0 (12.0–21.0)	<0.001	16.0 (12.0–22.0)	16.5 (13.0–23.0)	0.31
Tracheotomy	3.3 (7/215)	1.4 (3/215)	0.34	1.4 (1/71)	0 (0/71)	>0.99
No complications	61.4 (132/215)	83.7 (180/215)	<0.001	83.1 (59/71)	85.9 (61/71)	0.82
Nervous system complications	11.6 (25/215)	5.1 (11/215)	0.02	2.8 (2/71)	2.8 (2/71)	>0.99
Permanent neurological complications	8.4 (18/215)	5.1 (11/215)	0.005	0 (0/71)	0 (0/71)	NA
Cerebral hemorrhage	1.9 (4/215)	0 (0/215)	0.12	0 (0/71)	0 (0/71)	NA
Cerebral infarction	6.0 (13/215)	0.5 (1/215)	0.002	0 (0/71)	1.4 (1/71)	>0.99
Diffuse encephalopathy	1.9 (4/215)	0 (0/215)	0.12	0 (0/71)	0 (0/71)	NA
Limb paralysis	2.8 (6/215)	0.9 (2/215)	0.28	0 (0/71)	1.4 (1/71)	>0.99
Paraplegia	3.3 (7/215)	2.3 (5/215)	0.56	1.4 (1/71)	0 (0/71)	>0.99
Postoperative dialysis	16.3 (35/215)	6.0 (13/215)	<0.001	7.0 (5/71)	2.8 (2/71)	0.44
Limb ischemia	1.4 (3/215)	0.9 (2/215)	>0.99	1.4 (1/71)	1.4 (1/71)	>0.99
Cardiovascular complications	5.6 (12/215)	2.8 (6/215)	0.15	4.2 (3/71)	2.8 (2/71)	>0.99
Cardiac tamponade	2.8 (6/215)	0 (0/215)	0.03	0 (0/71)	0 (0/71)	NA
Arrhythmia	2.8 (6/215)	1.4 (3/215)	0.50	1.4 (1/71)	1.4 (1/71)	>0.99
ECMO	0.9 (2/215)	0.5 (1/215)	>0.99	1.4 (1/71)	0 (0/71)	>0.99
Secondary thoracotomy	3.7 (8/215)	1.4 (3/215)	0.22	1.4 (1/71)	1.4 (1/71)	>0.99
Delayed thoracotomy	0.9 (2/215)	0.9 (2/215)	>0.99	1.4 (1/71)	1.4 (1/71)	>0.99
Low cardiac output syndrome	1.9 (4/215)	1.4 (3/215)	>0.99	1.4 (1/71)	1.4 (1/71)	>0.99
Respiratory complications	12.1 (26/215)	6.0 (13/215)	0.03	8.5 (6/71)	5.6 (4/71)	0.75
Pulmonary infection	4.7 (10/215)	1.4 (3/215)	0.09	2.8 (2/71)	0 (0/71)	0.50
Pleural effusion	5.6 (12/215)	3.7 (8/215)	0.36	4.2 (3/71)	5.6 (4/71)	>0.99
Respiratory failure	3.3 (7/215)	0.9 (2/215)	0.18	1.4 (1/71)	0 (0/71)	>0.99
Postoperative bleeding	5.1 (11/215)	3.7 (8/215)	0.48	4.2 (3/71)	4.2 (3/71)	>0.99
Incision complications	7.9 (17/215)	0.9 (2/215)	<0.001	0 (0/71)	0 (0/71)	NA
Sternotomy	2.3 (5/215)	0.5 (1/215)	0.22	0 (0/71)	0 (0/71)	NA
Debridement	4.7 (10/215)	0.9 (2/215)	0.04	0 (0/71)	0 (0/71)	NA
Sepsis	2.3 (5/215)	0.5 (1/215)	0.22	0 (0/71)	0 (0/71)	NA
Reintubation	6.0 (13/215)	0.5 (1/215)	0.002	1.4 (1/71)	0 (0/71)	>0.99

The categorical variables in the table are presented as percentage (number of cases) and the continuous variables are expressed as median (interquartile range). ATAAD, acute type A aortic dissection; CTAAD, chronic type A aortic dissection; ECMO, extracorporeal membrane oxygenation; ICU, intensive care unit; NA, not applicable; STAAD, subacute type A aortic dissection.