

Table S1 Comparison of clinical data and outcomes between the modeling cohort and the validation cohort

Variables	Total (n=1,002)	Modeling cohort (n=689)	Validation cohort (n=313)	P value
Male	593 (59.2)	417 (60.5)	176 (56.2)	0.21
Age (years)	57.0 (49.0, 64.0)	57.0 (48.0, 64.0)	57.0 (50.0, 64.0)	>0.99
Weight (kg)	60.0 (53.0, 68.0)	60.0 (53.0, 67.0)	60.0 (53.0, 68.0)	0.35
Medical history				
Hypertension	242 (24.2)	158 (22.9)	84 (26.8)	0.20
Diabetes mellitus	90 (9.0)	62 (9.0)	28 (8.9)	>0.99
Hyperlipidemia	6 (0.6)	5 (0.7)	1 (0.3)	0.67
CAD	20 (2.0)	12 (1.7)	8 (2.6)	0.47
CKD	6 (0.6)	5 (0.7)	1 (0.3)	0.67
Nephrotoxic drugs	49 (4.9)	33 (4.8)	16 (5.1)	0.63
Pre-op LVEF (%)	63.0 (57.0, 67.0)	63.0 (57.0, 67.0)	63.0 (57.0, 66.0)	0.82
Pre-op examination				
Hemoglobin (g/L)	133.0 (119.0, 144.0)	134.0 (120.0, 145.0)	132.0 (117.0, 142.0)	0.03*
D-Dimer (ng/mL)	395.0 (240.0, 940.0)	360.0 (240.0, 830.0)	440.0 (260.0, 1,190.0)	0.01*
Albumin (g/L)	38.6 (36.2, 41.0)	38.5 (36.3, 40.9)	39.1 (36.0, 41.2)	0.46
Baseline sCr (μmol/L)	78.0 (64.7, 94.1)	78.0 (65.3, 93.6)	77.8 (63.9, 94.4)	0.48
Surgical procedures				
Valve surgery	814 (81.2)	545 (79.1)	269 (85.9)	0.86
CABG	69 (6.9)	51 (7.4)	18 (5.8)	0.42
CABG + valve surgery	61 (6.1)	44 (6.4)	17 (5.4)	0.67
Other procedures	58 (5.8)	49 (7.1)	9 (2.9)	0.008*
Intra-op data				
CPB duration, min	147.0 (113.0, 188.0)	145.0 (113.0, 186.0)	155.0 (113.0, 194.0)	0.26
ACC duration, min	89.0 (66.0, 119.0)	88.0 (64.0, 118.0)	92.0 (67.0, 122.0)	0.15
minimum temperature (°C)	31.0 (30.1, 31.8)	31.0 (30.1, 31.9)	31.0 (30.0, 31.6)	0.053
Intra-op transfusion				
RBC (U)	2.0 (1.5, 2.6)	2.0 (1.5, 2.6)	1.9 (1.4, 2.4)	0.50
Hydroxyethyl starch (mL)	356.3 (291.7, 428.5)	354.5 (288.6, 424.3)	359.3 (290.4, 430.6)	0.65
Emergency surgery	25 (2.5)	20 (2.9)	5 (1.6)	0.28
Post-op data				
APACHE II scores	9.9 (6.9, 12.9)	9.8 (6.8, 12.8)	10.2 (7.0, 13.4)	0.57
sCysC (mg/L)	1.0 (0.8, 1.3)	1.0 (0.8, 1.3)	1.0 (0.8, 1.4)	0.39
uNAG (U/g Cre)	10.7 (2.0, 23.6)	8.0 (1.6, 20.8)	13.7 (5.0, 26.1)	<0.001*
CK (U/L)	536.5 (398.8, 746.8)	530.0 (393.0, 746.0)	557.0 (404.0, 748.0)	0.37
CK-MB (U/L)	64.0 (44.1, 88.7)	61.2 (42.2, 87.8)	68.0 (47.0, 91.0)	0.04*

Table S1 (continued)

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Variables	Total (n=1,002)	Modeling cohort (n=689)	Validation cohort (n=313)	P value
NT-proBNP (pg/mL)	1,390.0 (559.1, 3,106.0)	1,565.0 (636.6, 3,556.0)	991.2 (460.7, 2,404.0)	<0.001*
cTnl (ng/mL)	679.2 (344.9, 1,220.3)	654.6 (304.4, 1,183.0)	752.9 (389.2, 1,311.0)	0.03*
Outcomes				
ICU LOS (h)	47.0 (35.0, 116.0)	45.0 (27.0, 112.0)	62.0 (38.0, 142.0)	0.002*
CRRT	29 (2.9)	19 (2.8)	10 (3.2)	0.69
IABP	64 (6.4)	43 (6.2)	21 (6.7)	0.78
ECMO	13 (1.3)	11 (1.6)	2 (0.6)	0.37
MV (h)	21.0 (14.0, 45.8)	20.0 (13.0, 43.0)	22.0 (17.0, 66.0)	<0.001*
Hospital costs (CNY)	150,477.0 (119,107.0, 202,909.2)	147,998.0 (117,752.0, 194,398.0)	158,874.0 (123,977.0, 219,095.0)	0.008*
In-hospital mortality	33 (3.3)	20 (2.9)	13 (4.2)	0.34

Data were presented as median (interquartile range) or n (%).*, there is a statistical difference. CAD, coronary artery disease; CKD, chronic kidney disease; Nephrotoxic drugs, including immunosuppressants, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, non-steroidal anti-inflammatory drugs, antibiotics (including vancomycin, acyclovir, amphotericin B, aminoglycosides), mannitol, angiography agents, etc.; Pre-op, preoperative; LVEF, left ventricular ejection fraction; sCr, serum creatinine; CABG, coronary artery bypass grafting; Other procedures, including correction of congenital heart disease, repair of aortic sinus aneurysm, etc.; CPB, cardiopulmonary bypass; ACC, aortic cross-clamping; Intra-op, intraoperative; RBC, red blood cell; Post-op, postoperative; APACHE, acute physiology and chronic health evaluation; sCysC, serum cystatin C; uNAG, urine N-acetyl- β -D-glucosidase; CK, creatine kinase; CKMB, creatine kinase isoenzyme; NT-proBNP, N-terminal B-type natriuretic peptide precursor; cTnl, cardiac troponin I; ICU LOS, intensive care unit length of stay; CRRT, continuous renal replacement therapy; IABP, intra-aortic balloon pump; ECMO, extracorporeal membrane oxygenation; MV, mechanical ventilation; CNY, Chinese yuan.

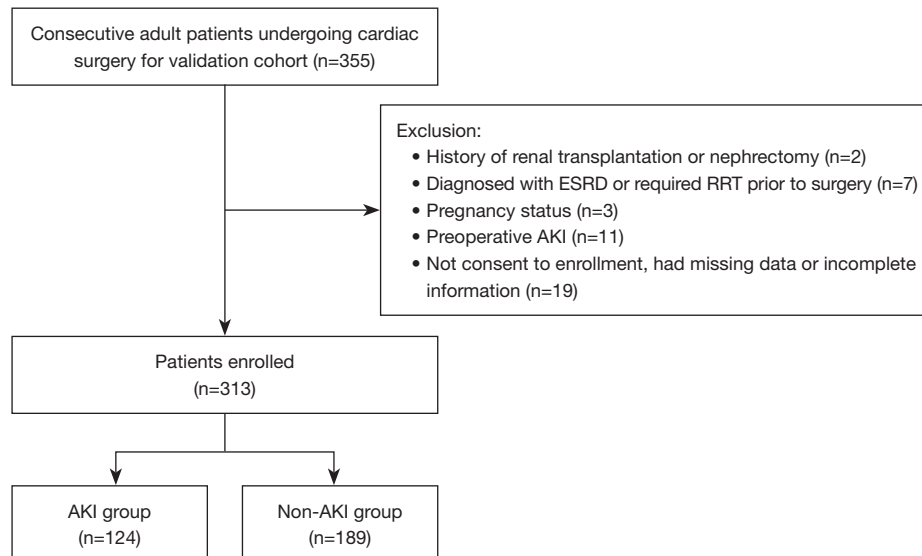


Figure S1 Patient inclusion flow chart for the validation cohort. AKI, acute kidney injury; ESRD, end stage renal disease; RRT, renal replacement therapy.