

Supplementary Information

Clinical implication of N-terminal pro-B type natriuretic peptide to predict mortality in patients with acute type A aortic dissection: a retrospective cohort study

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Table S1. Patient Characteristics According to the 1-year Survival

	Total (N=829)	1-year Survival (N=573)	1-year Death (N=256)
Baseline Characteristics			
Age, yrs	55.1 ± 13.1	53.4 ± 12.3	59.0 ± 14.0
Male	587 (70.8)	416 (72.6)	171 (66.8)
Heart rate	79.4 ± 18.1	79.0 ± 17.3	80.4 ± 20.0
Admission SBP (mmHg)	144.5 ± 31.9	150.0 ± 29.4	132.9 ± 34.0
Admission DBP (mmHg)	77.3 ± 19.8	79.2 ± 19.9	73.1 ± 19.2
Diabetes mellitus	40 (4.8)	24 (4.2)	16 (6.3)
Hypertension	690 (83.2)	490 (85.5)	200 (78.1)
Hyperlipidemia	180 (21.7)	134 (23.4)	46 (18.0)
Smoking	264 (31.8)	217 (37.9)	47 (18.4)
Coronary artery disease	123 (14.8)	81 (14.1)	42 (16.4)
Previous stroke	63 (7.6)	45 (7.9)	18 (7.0)
Previous aortic disease	22 (2.7)	14 (2.4)	8 (3.1)
Previous replacement of aorta valve	12 (1.4)	7 (1.2)	5 (2.0)
Syncope	61 (7.4)	31 (5.4)	30 (11.7)
Coma	14 (1.7)	1 (0.2)	13 (5.1)
Shock	35 (4.2)	0 (0)	35 (13.7)
Time from onset to admission, hrs	12.0 (7.0-24.0)	13.0 (7.0-30.0)	9.0 (6.0-19.0)
In-hospital assessment			
Left ventricular diameter, mm	49.9 ± 7.4	50.6 ± 6.6	48.4 ± 8.8
Left ventricular ejection fraction, %	58.8 ± 7.7	59.7 ± 6.0	56.4 ± 10.3
Aortic valve regurgitation	210 (25.4)	138 (24.1)	72 (28.5)
Pericardial effusion	61 (7.4)	21 (3.7)	40 (15.8)

Artery affected			
Coronary artery	213 (27.0)	136 (23.8)	77 (35.5)
Brachiocephalic trunk	522 (66.2)	358 (62.6)	164 (75.6)
Coeliac axis	227 (28.8)	155 (27.1)	72 (33.2)
Superior mesenteric artery	198 (25.1)	138 (24.1)	60 (27.6)
Renal artery	211 (26.7)	139 (24.3)	72 (33.2)
Iliac artery	298 (37.8)	209 (36.5)	89 (41.0)
Baseline biomarkers			
NT-proBNP, pg/ml	308.0 (104.8-974.5)	236.3 (90.9-796.0)	517.2 (199.2-1453.9)
ln NT-proBNP	5.8 ± 1.6	5.6 ± 1.6	6.3 ± 1.5
Haemoglobin, g/dl	134.8 ± 19.2	135.6 ± 18.2	133.0 ± 21.2
D-dimers, mg/l	10.9 (3.8-20.0)	7.8 (2.8-20.0)	20.0 (8.8-20.0)
Creatinine, umol/L	110.9 ± 58.2	99.0 ± 41.4	137.6 ± 78.1
C-reactive protein, mg/l	11.4 (4.6-53.2)	12.8 (5.0-66.2)	8.9 (4.2-31.3)
Troponin I (TnI), ng/ml	0 (0-0.04)	0 (0-0.02)	0.03 (0-0.19)
Treatment			
Conservative treatment	305 (36.8)	79 (13.8)	226 (88.3)
Surgery treatment	524 (63.2)	494 (86.2)	30 (11.7)

Values are median (IQR) or n (%).

Abbreviations as in Table 1.

Table S2. Patient Characteristics According to the 30-day Survival

	Total (N=829)	30-day Survival (N=596)	30-day Death (N=233)
Baseline Characteristics			
Age, yrs	55.1 ± 13.1	53.7 ± 12.5	58.6 ± 13.9
Male	587 (70.8)	430 (72.1)	157 (67.4)
Heart rate	79.4 ± 18.1	78.9 ± 17.1	80.5 ± 20.5
Admission SBP (mmHg)	144.5 ± 31.9	149.2 ± 29.6	132.5 ± 34.4
Admission DBP (mmHg)	77.3 ± 19.8	78.9 ± 19.8	73.2 ± 19.4
Diabetes mellitus	40 (4.8)	26 (4.4)	14 (6.0)
Hypertension	690 (83.2)	508 (85.2)	182 (78.1)
Hyperlipidemia	180 (21.7)	139 (23.3)	41 (17.6)
Smoking	264 (31.8)	221 (37.1)	43 (18.5)
Coronary artery disease	123 (14.8)	83 (13.9)	40 (17.2)
Previous stroke	63 (7.6)	47 (7.9)	16 (6.9)
Previous aortic disease	22 (2.7)	14 (2.3)	8 (3.4)
Previous replacement of aorta valve	12 (1.4)	8 (1.3)	4 (1.7)
Syncope	61 (7.4)	31 (5.2)	30 (12.9)
Coma	14 (1.7)	1 (0.2)	13 (5.6)
Shock	35 (4.2)	0 (0)	35 (15.0)
Time from onset to admission, hrs	12.0 (7.0-24.0)	13.0 (7.0-30.0)	9.0 (6.0-18.0)
In-hospital assessment			
Left ventricular diameter, mm	49.9 ± 7.4	50.5 ± 6.6	48.4 ± 9.0
Left ventricular ejection fraction, %	58.8 ± 7.7	59.7 ± 5.9	56.0 ± 10.7
Aortic valve regurgitation	210 (25.4)	145 (24.3)	65 (28.3)
Pericardial effusion	61 (7.4)	21 (3.5)	40 (17.4)

Artery affected			
Coronary artery	213 (27.0)	144 (24.2)	69 (35.6)
Brachiocephalic trunk	522 (66.2)	375 (63.0)	147 (75.8)
Coeliac axis	227 (28.8)	164 (27.6)	63 (32.5)
Superior mesenteric artery	198 (25.1)	143 (24.0)	55 (28.4)
Renal artery	211 (26.7)	148 (24.9)	63 (32.5)
Iliac artery	298 (37.8)	218 (36.6)	80 (41.2)
Baseline biomarkers			
NT-proBNP, pg/ml	308.0 (104.8-974.5)	245.7 (91.3-841.3)	482.0 (193.4-1489.0)
ln NT-proBNP	5.8 ± 1.6	5.6 ± 1.6	6.3 ± 1.5
Haemoglobin, g/dl	134.8 ± 19.2	135.2 ± 18.9	133.8 ± 19.7
D-dimers, mg/l	10.9 (3.8-20.0)	8.0 (2.9-20.0)	20.0 (8.2-20.0)
Creatinine, umol/L	110.9 ± 58.2	99.3 ± 41.6	140.5 ± 80.1
C-reactive protein, mg/l	11.4 (4.6-53.2)	12.9 (5.0-68.6)	8.9 (4.2-29.5)
Troponin I (TnI), ng/ml	0 (0-0.04)	0 (0-0.02)	0.03 (0-0.17)
Treatment			
Conservative treatment	305 (36.8)	89 (14.9)	216 (92.7)
Surgery treatment	524 (63.2)	507 (85.1)	17 (7.3)

Values are median (IQR) or n (%).

SBP, stress blood pressure; DBP, diastolic blood pressure; NT-proBNP, N-terminal pro-B type natriuretic peptide.

Table S3. Association Between NT-proBNP and Clinical Outcome.

	1-Year death			30-Day death		
	No. of events/total patients (%) [*]	Hazard ratio (95% CI)	P value	No. of events/total patients (%)	Odds ratio (95% CI)	P value
In NT-proBNP	–	1.24 (1.15-1.34)	<0.001	–	1.32 (1.19-1.46)	<0.001
NT-proBNP tertiles						
T1 (≤155.0)	50/276 (18.1)	Reference	–	47/276 (17.0)	Reference	–
T2 (155.0-671.4)	90/277 (32.5)	1.91 (1.35-2.69)	<0.001	83/277 (30.0)	2.08 (1.39-3.13)	<0.001
T3 (>671.4)	116/276 (42.0)	2.56 (1.84-3.57)	<0.001	103/276 (37.3)	2.90 (1.95-4.32)	<0.001

^{*}Values are Kaplan-Meier estimated rates.

CI, confidence interval.

Table S4. Patient Characteristics and Outcomes According to the Treatment Strategy

	Total (N=829)	Conservative (N=305)	Surgery (N=524)
Baseline Characteristics			
Age, yrs	55.1 ± 13.1	53.7 ± 12.5	58.6 ± 13.9
Male	587 (70.8)	202 (66.2)	385 (73.5)
Heart rate	79.4 ± 18.1	81.1 ± 20.4	78.5 ± 16.6
Admission SBP (mmHg)	144.5 ± 31.9	137.9 ± 33.8	148.3 ± 30.0
Admission DBP (mmHg)	77.3 ± 19.8	75.3 ± 19.4	78.4 ± 20.0
Diabetes mellitus	40 (4.8)	14 (4.6)	26 (5.0)
Hypertension	690 (83.2)	249 (81.6)	441 (84.2)
Hyperlipidemia	180 (21.7)	57 (18.7)	123 (23.5)
Smoking	264 (31.8)	55 (18.0)	209 (39.9)
Coronary artery disease	123 (14.8)	52 (17.0)	71 (13.5)
Previous stroke	63 (7.6)	28 (9.2)	35 (6.7)
Previous aortic disease	22 (2.7)	11 (3.6)	22 (2.7)
Previous replacement of aorta valve	12 (1.4)	7 (2.3)	5 (1.0)
Syncope	61 (7.4)	34 (11.1)	27 (5.2)
Coma	14 (1.7)	13 (4.3)	1 (0.2)
Shock	35 (4.2)	35 (15.0)	0 (0)
Time from onset to admission, hrs	12.0 (7.0-24.0)	10.0 (6.0-24.0)	13.0 (7.0-24.5)
In-hospital assessment			
Left ventricular diameter, mm	49.9 ± 7.4	48.7 ± 8.5	50.6 ± 6.7
Left ventricular ejection fraction, %	58.8 ± 7.7	56.4 ± 10.4	60.1 ± 5.2
Aortic valve regurgitation	210 (25.4)	77 (25.5)	133 (25.4)
Pericardial effusion	61 (7.4)	42 (13.9)	19 (3.6)

Artery affected			
Coronary artery	213 (27.0)	82 (30.9)	131 (25.0)
Brachiocephalic trunk	522 (66.2)	183 (69.1)	339 (64.7)
Coeliac axis	227 (28.8)	85 (32.1)	142 (27.1)
Superior mesenteric artery	198 (25.1)	67 (25.3)	131 (25.0)
Renal artery	211 (26.7)	75 (28.3)	36 (26.0)
Iliac artery	298 (37.8)	95 (35.8)	203 (38.7)
Baseline biomarkers			
NT-proBNP, pg/ml	308.0 (104.8-974.5)	524.9 (192.6-1490.5)	227.9 (82.9-722.3)
ln NT-proBNP	5.8 ± 1.6	6.3 ± 1.5	5.5 ± 1.5
Haemoglobin, g/dl	134.8 ± 19.2	131.8 ± 21.1	136.6 ± 17.8
D-dimers, mg/l	10.9 (3.8-20.0)	16.6 (6.3-20.0)	8.2 (2.9-20.0)
Creatinine, umol/L	110.9 ± 58.2	131.3 ± 75.4	99.0 ± 40.9
C-reactive protein, mg/l	11.4 (4.6-53.2)	10.0 (4.7-50.0)	11.9 (4.5-54.2)
Troponin I (TnI), ng/ml	0 (0-0.04)	0 (0-0.13)	0 (0-0.02)
Clinical Outcomes			
1-year death	256 (30.9)	226 (74.1)	30 (5.7)
30-day death	233 (28.1)	216 (70.8)	17 (3.2)

Values are median (IQR) or n (%).

Abbreviations as in Table 1.

Figure S1. Baseline NT-proBNP as a predictor of 30-day outcome

Abbreviations as in Figure 1.

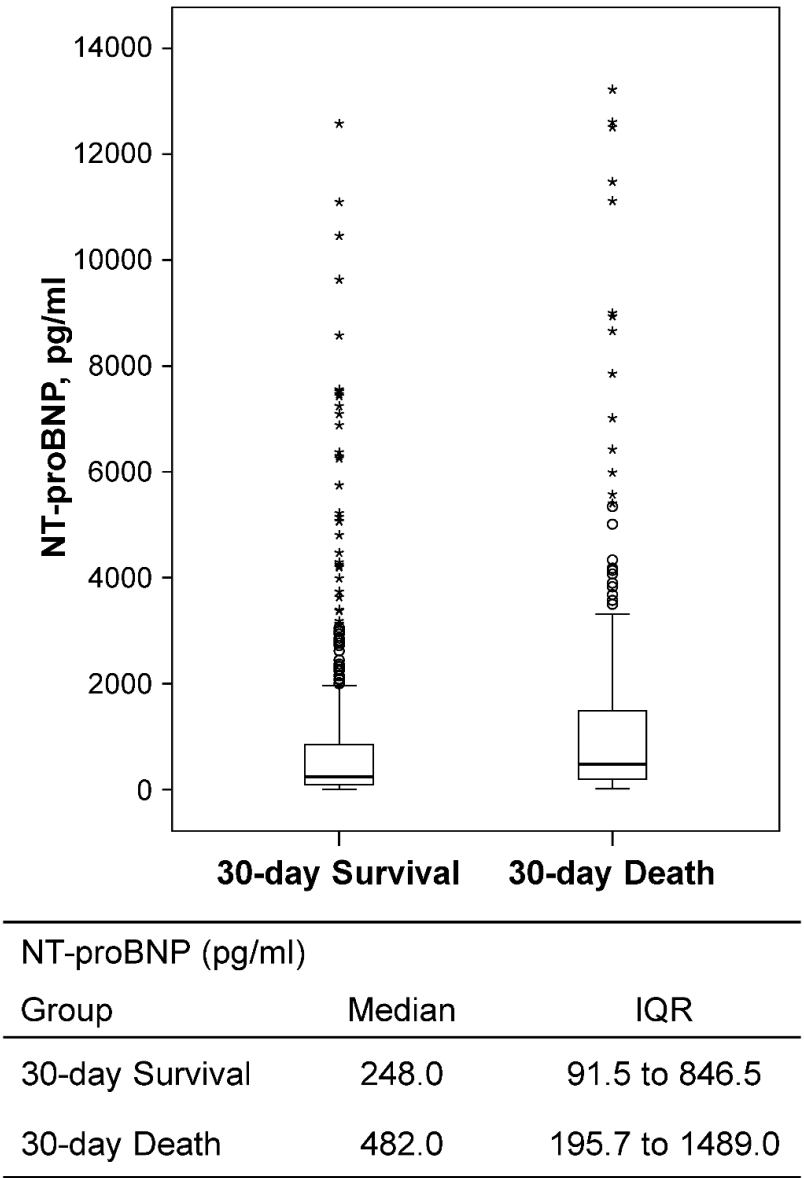


Figure S2. Death within 30 days from admission according to NT-proBNP levels

Incidence of 30-day all-cause death is presented according to (A) NT-proBNP tertiles and (B) continuous value of ln NT-proBNP among patients with acute type A aortic dissection.

CI, confidence interval; OR, odds ratio; other abbreviations as in Figure 1.

