

SUPPLEMENTAL MATERIAL

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Table S1. Baseline Characteristics and Clinical Outcomes in patients with normal compared to elevated baseline lactate levels

Baseline Characteristics	Normal Lactate (N = 50)	Elevated Lactate (N = 142)	P Value
Age, mean (SD), yrs	71.0 (13.3)	70.3 (12.6)	0.57
Male, No. (%)	28 (56.0)	94 (66.2)	0.2
Body mass index, mean (SD), kg/m ²	27.1 (6.0)	27.5 (5.8)	0.82
Ethnicity			0.79
Caucasian	42 (84.0)	123 (86.6)	
Black	1 (2.0)	4 (2.8)	
Asian	4 (8.0)	7 (4.9)	
Middle Eastern	3 (6.0)	6 (4.2)	
Other	0 (0)	2 (1.4)	
Medical History, No. (%)			
Diabetes	28 (56.0)	74 (52.1)	0.64
Previous myocardial infarction	18 (36.0)	50 (35.2)	0.92
Previous Coronary bypass grafting	7 (14.0)	32 (22.5)	0.20
Previous stroke or TIA	5 (10.0)	23 (16.2)	0.29
Previous percutaneous coronary intervention	14 (28.0)	35 (24.6)	0.64
Atrial fibrillation	21 (42.0)	74 (52.1)	0.22
Chronic kidney disease	18 (36.0)	32 (22.5)	0.06
Chronic obstructive pulmonary disease	5 (5.0)	20 (14.1)	0.46
Chronic liver disease	5 (10.0)	8 (5.6)	0.29
Home medications prior to presentation, No. (%)			
ASA	41 (82.1)	86 (60.6)	0.006
P2Y12 Inhibitor	34 (68.0)	65 (45.8)	0.007
Warfarin	2 (4.0)	19 (13.4)	0.07
Direct oral anticoagulant	3 (6.0)	36 (25.4)	0.004
Beta blocker	24 (48.0)	69 (48.6)	0.94
Statin	34 (68.0)	92 (64.8)	0.68
ACEi, ARB, or ARNI	21 (42.0)	64 (45.1)	0.71
Mineralocoid receptor antagonist	9 (18.0)	20 (14.1)	0.51
Nitrates and/or hydralazine	9 (18.0)	17 (12.0)	0.29
Diuretic	41 (82.0)	110 (77.5)	0.5
Digoxin	5 (10.0)	9 (6.3)	0.40
Baseline Clinical Characteristics			
Heart rate (SD), bpm	83.4 (19.1)	93.5 (22.4)	0.008
Mean arterial blood pressure (SD), mmHg	72.5 (12.0)	77.9 (14.1)	0.02
Cardiac index (SD), L/min/m ²	1.77 (0.34)	1.54 (0.39)	0.23

Systemic vascular resistance (SD) dynes·sec·cm-5	1548 (436)	1913 (634)	0.19
Society for Cardiovascular Angiography & Interventions (SCAI) Shock Class			
SCAI B	11 (22.0)	0 (0)	< 0.001
SCAI C	35 (70.0)	120 (84.5)	0.03
SCAI D	4 (8.0)	18 (12.7)	0.37
SCAI E	0 (0)	4 (2.8)	0.23
Invasive ventilation, No. (%)	15 (30.0)	25 (17.6)	0.04
Intravenous vasopressors, No. (%)	28 (56.0)	64 (45.4)	0.20
Intra-aortic balloon pump, No. (%)	0 (0)	10 (7.0)	0.06
Pulmonary artery catheter, No. (%)	10 (20.0)	13 (9.2)	0.04
Hemoglobin, mean (SD), g/dL	10.9 (2.13)	12.1 (2.39)	0.002
Lactate, mean (SD), mmol/L	1.39 (0.32)	4.70 (3.24)	<0.001
Aspartate transaminase, mean (SD), units/L	311 (1050)	670 (1116)	<0.001
Renal Function, mean (SD)			
Serum creatinine, mmol/L	163.8 (98.3)	191.2 (136.4)	0.13
Estimated GFR [‡] , mL/min/1.73 m ²	66.2 (38.9)	72.4 (38.8)	0.15
Clinical Outcomes			
MACE, No. (%)	23 (46.0)	76 (53.5)	0.36
30-day survival, No. (%)	34 (68.0)	82 (57.7)	0.20
SD – standard deviation; TIA – transient ischemic attack; ACEi – angiotensin converting enzyme inhibitor; ARB – angiotensin II receptor blocker; ARNI – angiotensin receptor-neprilysin inhibitor			
[‡] Modification of Diet in Renal Disease equation			

Table S2. Absolute lactate levels grouped by survivors and non-survivors

Absolute lactate, median (IQR), mmol/L	Survivors	Non-survivors	P Value
Baseline	3.75 (2.63-5.40)	3.70 (2.68-5.98)	0.578
4 hours	2.50 (1.80-3.30)	2.95 (2.10-4.97)	0.083
8 hours	2.05 (1.50-2.73)	2.40 (1.90-3.40)	0.024
12 hours	1.80 (1.30-2.18)	2.40 (1.72-2.98)	<0.001
18 hours	1.70 (1.30-2.20)	2.05 (1.80-3.08)	<0.001
24 hours	1.50 (1.30-2.08)	2.30 (1.65-2.85)	<0.001
36 hours	1.50 (1.30-1.90)	1.95 (1.60-2.82)	<0.001

IQR – interquartile range

Table S3. Complete lactate clearance grouped by survivors and non-survivors

Complete Lactate Clearance*, No. (%)	Total (N=142)	Survivors (N=60)	Non-survivors (N=82)	Relative Risk	P Value
4 hours	37 (28.2)	25 (30.5)	12 (20.0)	0.80 (0.61-1.07)	0.16
8 hours	16 (26.7)	37 (45.1)	16 (26.7)	0.72 (0.55-0.95)	0.03
12 hours	78 (54.9)	55 (67.1)	23 (38.3)	0.60 (0.43-0.83)	< 0.01
18 hours	91 (64.1)	63 (76.8)	28 (46.7)	0.54 (0.37-0.79)	< 0.01
24 hours	103 (72.5)	71 (86.6)	32 (53.3)	0.41 (0.24-0.69)	< 0.01
36 hours	107 (75.4)	74 (90.2)	33 (55.0)	0.33 (0.18-0.62)	< 0.01

*Complete lactate clearance – lactate < 2 mmol/L

Table S4. Lactate clearance grouped by survivors and non-survivors

Lactate Clearance 1, median (IQR), %	Survivors	Non-survivors	P Value
4 hours	33.3 (6.45-45.8)	20.9 (0.93-39.6)	0.075
8 hours	44.4 (13.4-59.4)	24.4 (8.11-45.2)	0.011
12 hours	56.9 (30.6-65.3)	26.0 (0.16-47.6)	<0.001
18 hours	52.0 (29.7-69.0)	28.8 (5.75-51.4)	0.002
24 hours	58.7 (39.3-70.3)	37.9 (8.28-56.2)	<0.001
36 hours	55.4 (43.1-71.8)	42.4 (8.59-54.4)	<0.001
Lactate Clearance 2, median (IQR), %			
4 hours	8.33 (1.61-11.5)	5.22 (0.23-9.90)	0.075
8 hours	5.55 (1.67-7.43)	3.06 (1.01-5.65)	0.011
12 hours	4.74 (2.55-5.44)	2.16 (0.01-3.97)	<0.001
18 hours	2.89 (1.65-3.83)	1.60 (0.32-2.86)	0.002
24 hours	2.45 (1.64-2.93)	1.58 (0.35-2.34)	<0.001
36 hours	1.54 (1.20-1.99)	1.18 (0.24-1.51)	<0.001
IQR – interquartile range			

Table S5. Multivariate logistic regression analysis assessing the relation between clinical variable and in-hospital survival

	6-8 Hours								
	Odds Ratio	95% Confidence Interval	P Value	Odds Ratio	95% Confidence Interval	P Value	Odds Ratio	95% Confidence Interval	P Value
Age	0.94	0.91 – 0.98	<0.01	0.94	0.91 – 0.98	<0.01	0.95	0.92 – 0.98	<0.01
Baseline MAP	1.04	1.00 – 1.08	0.04	1.04	1.00 – 1.08	0.04	1.03	1.00 – 1.07	0.03
Mechanical Ventilation	0.18	0.06 – 0.50	<0.01	0.18	0.06 – 0.55	<0.01	0.28	0.10 – 0.79	0.02
Lactate Clearance 1	1.02	1.00 – 1.03	0.01						
Lactate Clearance 2				1.15	1.03 – 1.29	0.01			
Complete Lactate Clearance							2.46	1.09 – 5.55	0.03
	12 Hours								
	Odds Ratio	95% Confidence Interval	P Value	Odds Ratio	95% Confidence Interval	P Value	Odds Ratio	95% Confidence Interval	P Value
Age	0.95	0.91 – 0.98	<0.01	0.95	0.91 – 0.98	<0.01	0.94	0.91 – 0.94	<0.01
Baseline MAP	1.05	1.01 – 1.09	<0.01	1.05	1.01 – 1.10	<0.01	1.04	1.00 – 1.07	0.03
Mechanical Ventilation	0.22	0.07 – 0.73	0.01	0.22	0.07 – 0.74	0.01	0.31	0.11 – 0.89	0.03
Lactate Clearance 1	1.02	1.01 – 1.04	<0.01						
Lactate Clearance 2				1.31	1.12 – 1.53	<0.01			
Complete Lactate Clearance							3.98	1.76 – 8.99	<0.01
	18 Hours								
	Odds Ratio	95% Confidence Interval	P Value	Odds Ratio	95% Confidence Interval	P Value	Odds Ratio	95% Confidence Interval	P Value
Age	0.94	0.91 – 0.98	<0.01	0.94	0.91 – 0.98	<0.01	0.95	0.91 – 0.98	<0.01
Baseline MAP	1.04	1.00 – 1.08	0.05	1.04	1.00 – 1.08	0.05	1.03	1.00 – 1.07	0.04
Mechanical Ventilation	0.15	0.04 – 0.52	<0.01	0.15	0.04 – 0.52	<0.01	0.29	0.10 – 0.84	0.02
Lactate Clearance 1	1.02	1.01 – 1.03	<0.01						
Lactate Clearance 2				1.33	1.10 – 1.61	<0.01			
Complete Lactate Clearance							3.68	1.62 – 8.38	<0.01
	24 Hours								
	Odds Ratio	95% Confidence Interval	P Value	Odds Ratio	95% Confidence Interval	P Value	Odds Ratio	95% Confidence Interval	P Value
Age	0.96	0.92 – 0.99	0.03	0.96	0.92 – 0.99	0.03	0.95	0.92 – 0.99	<0.01
Baseline MAP	1.02	0.98 – 1.06	0.35	1.02	0.98 – 1.06	0.35	1.03	0.99 – 1.07	0.05
Mechanical Ventilation	0.15	0.04 – 0.51	<0.01	0.15	0.04 – 0.51	<0.01	0.25	0.08 – 0.74	0.01
Lactate Clearance 1	1.03	1.01 – 1.05	<0.01						
Lactate Clearance 2				1.96	1.30 – 2.96	<0.01			

Complete Lactate Clearance							5.44	2.14 – 13.8	<0.01
MAP – mean arterial pressure									