

SUPPLEMENTARY APPENDIX

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Table S1—Comparison between patients with radiologically and clinically diagnosed pulmonary oedema treated with or without continuous renal replacement therapy (CRRT)

Characteristics	CRRT	No CRRT	P-Value
Number	69	169	
Baseline age, years	62 (12.7)	63.1 (14.9)	0.58
Female	24 (34.8%)	68 (40.2%)	0.43
APACHE III Score	83 (25.2)	57.6 (22.8)	<0.01
Comorbidities			
Chronic liver disease/cirrhosis	19 (27.5%)	19 (11.2%)	<0.01
Chronic Respiratory Disease	5 (7.2%)	20 (11.8%)	0.30
Chronic Cardiovascular disease	4 (5.8%)	14 (8.3%)	0.51
Immunosuppression	5 (7.2%)	15 (8.9%)	0.68
Chronic Renal Failure	19 (27.5%)	9 (5.3%)	<0.01
Intervention			
Furosemide	45 (65.2%)	139 (82.2%)	<0.01
NIV	9 (13%)	21 (12.4%)	0.89
Invasive MV	59 (85.5%)	116 (68.6%)	<0.01
Cumulative Fluid Balance (mL)	-1870 (-5458 - 1344)	-1352 (-3763 - 510)	0.65
Daily Fluid Balance (mL)	-157.9 (-400.7 - 112.7)	-262.9 (-676 - 107.4)	0.07
Total Furosemide dose (mg)	260 (140 - 500)	140 (40 - 290)	<0.01
Daily Furosemide dose (mg)	16.9 (10.6 - 35)	34.7 (14.5 - 64.5)	<0.01
Outcome			
ICU Mortality	19 (27.5%)	4 (2.4%)	<0.01
Hospital Mortality	27 (39.1%)	19 (11.2%)	<0.01
Chronic Care Facility Discharge	15 (21.7%)	32 (18.9%)	0.58
PO Clearance	53 (76.8%)	124 (73.4%)	0.58
Invasive MV Time (h)	167.5 (68.5 - 347.8)	34.4 (11.9 - 111.4)	<0.01
Hospital LOS, <i>d (range)</i>	27.3 (16.3 - 46.4)	16.1 (8.5 - 27.6)	<0.01
ICU LOS, <i>d (range)</i>	11 (7.2 -18.8)	3.7 (1.9-6.8)	<0.01

*Values given as mean SD, median IQR or No. (%), unless otherwise indicated. LOS is length of stay. MV is Mechanical Ventilation. CRRT is Continuous Renal Replacement Therapy. Scores on the Acute Physiology and Chronic Health Evaluation (APACHE) III range from 0 to 299, with higher scores indicating more severe disease and a higher risk of death. The score was calculated with the values recorded for each variable during the 24 hours for patients admitted to ICU.

Table S2—Comparison of patients with radiologically diagnosed pulmonary oedema treated with or without furosemide

Characteristics	Furosemide Group	Other Diuretics	No spontaneous Diuresis and No Diuretics	P-Value
Number	184 (77.3%)	30 (12.6)	24 (10%)	
Baseline age, yr	62.4 (14.6)	65.9 (13.7)	61.9 (12.8)	0.42
Female	670 (38%)	14 (46.7%)	8 (33.3%)	0.57
APACHE III Score	64.6 (26.1)	51.2 (17.7)	84.5 (24.3)	<0.01
Comorbidities				
Chronic liver disease/cirrhosis	24 (13%)	3 (10%)	11 (45.8%)	<0.01
Chronic Respiratory Disease	21 (11.4%)	2 (6.7%)	2 (8.3%)	0.69
Chronic Cardiovascular disease	14 (7.6%)	2 (6.7%)	2 (8.3%)	0.97
Immunosuppression	14 (7.6%)	5 (16.7%)	1 (4.2%)	0.19
Chronic Renal Failure	16 (8.7%)	1 (3.3%)	11 (45.8%)	<0.01
Intervention				
NIV	25 (13.6%)	1 (3.3%)	4 (16.7%)	0.24
Invasive MV	140 (76.1%)	19 (63.3%)	16 (66.7%)	0.25
CRRT	45 (24.5%)	0	24 (100%)	<0.01
Daily furosemide dose (mg)	32.9 (13.7-54.5)	0	0	
Total furosemide dose (mg)	160 (80-340)	0	0	
Cumulative Fluid Balance (mL)	-1709 (-4921 - 383)	-11.5 (-1218 - 742)	738 (-4590 - 3401)	<0.01
Daily Fluid Balance (mL)	-257.4 (-674.9 - 28.6)	19.4 (-470.4 - 306.5)	100.9 (-426.1 - 373.9)	<0.01
Outcome				
ICU Mortality	18 (9.8%)	0	5 (20.8%)	0.04
Hospital Mortality	33 (17.9%)	3 (10%)	10 (41.7%)	<0.01
Chronic Care Facility Discharge	29 (16.7%)	7 (23.3%)	7 (29.2%)	0.13
PO Clearance	139 (75.5%)	21 (70%)	17 (70.8%)	0.74
CRRT Time (h)	137 (67 - 199.5)	0	165.7 (65.5 - 299)	<0.01
Invasive MV Time (h)	50.5 (14.3 - 175.1)	156.3 (78.1 - 347.8)	43 (17.7 - 104.5)	0.02
Hospital LOS, d (range)	18.4 (10.5 - 33.2)	14.5 (5.3 - 24.3)	27.7 (13.1 - 42.3)	0.02
ICU LOS, d (range)	5.2 (2.9 - 10.2)	1.7 (1.2 - 2)	7.3 (5.8 - 13.4)	<0.01

*Values given as mean SD, median IQR or No. (%), unless otherwise indicated. Other diuresis = spontaneous (no diuretics given in ICU) LOS is length of stay. MV is Mechanical Ventilation. CRRT is Continuous Renal Replacement Therapy. Scores on the Acute Physiology and Chronic Health Evaluation (APACHE) III range from 0 to 299, with higher scores indicating more severe disease and a higher risk of death. The score was calculated with the values recorded for each variable during the 24 hours for patients admitted to ICU.

Table S3:*Logistic Regression for RCDPO resolution*

	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>df</i>	<i>P Value</i>	Odds Ratio	95% CI for Odds Ratio	
							Lower	Upper
Age	-0.010	0.011	0.746	1	0.388	0.990	0.968	1.013
Invasive MV	0.934	0.327	8.148	1	0.004	2.545	1.340	4.833
CRRT	0.192	0.390	0.242	1	0.622	1.212	0.564	2.601
Chronic Liver Disease	0.081	0.446	0.033	1	0.856	1.084	0.452	2.600
APACHE III Score	-0.008	0.007	1.425	1	0.233	0.992	0.979	1.005
Constant	1.510	0.765	3.894	1	0.048	4.526		

RCDPO is radiologically and clinically diagnosed pulmonary oedema; MV is Mechanical Ventilation. CRRT is Continuous Renal Replacement Therapy. Scores on the Acute Physiology and Chronic Health Evaluation (APACHE) III range from 0 to 299, with higher scores indicating more severe disease and a higher risk of death. The score was calculated with the values recorded for each variable during the 24 hours for patients admitted to the Intensive Care Unit (ICU).

Table S4:*Cox Proportional Hazard model for RCDPO resolution*

	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	Hazards Ratio	95.0% CI for Hazards Ratio	
							Lower	Upper
Age	0.008	0.006	1.723	1	0.189	1.008	0.996	1.019
Invasive MV	0.093	0.191	0.235	1	0.628	1.097	0.754	1.596
CRRT	-0.513	0.197	6.790	1	0.009	0.598	0.407	0.881
APACHE III Score	-0.011	0.004	6.881	1	0.009	0.989	0.980	0.997
Chronic Liver Disease	-0.417	0.221	3.578	1	0.059	0.659	0.428	1.015

RCDPO is radiologically and clinically diagnosed pulmonary oedema; MV is Mechanical Ventilation. CRRT is Continuous Renal Replacement Therapy. Scores on the Acute Physiology and Chronic Health Evaluation (APACHE) III range from 0 to 299, with higher scores indicating more severe disease and a higher risk of death. The score was calculated with the values recorded for each variable during the 24 hours for patients admitted to the Intensive Care Unit (ICU).

Table S5—Comparison of patients with radiologically and clinically diagnosed pulmonary oedema according to survival

Characteristics	Survivors	Non-survivors	P-value
Number	192 (80.7)	46 (19.3)	
Baseline age, years	61.5 (±14.5)	68 (±12.2)	<0.01
Female	77 (40.1%)	15 (32.6%)	0.35
APACHE III Score	60.9 (±24.7)	82 (±25.2)	<0.01
Comorbidities			
Chronic liver disease/cirrhosis	25 (13%)	13 (28.3%)	0.01
Chronic Respiratory Disease	19 (9.9%)	6 (13%)	0.53
Chronic Cardiovascular disease	16 (8.3%)	2 (4.3%)	0.36
Immunosuppression	13 (6.8%)	7 (15.2%)	0.06
Chronic Renal Failure	21 (10.9%)	7 (15.2%)	0.42
Diagnosis			
Cardiovascular	79 (41.1%)	16 (34.8%)	0.79
Respiratory	25 (13%)	7 (15.2%)	0.95
Gastrointestinal	38 (19.8%)	14 (30.4%)	0.15
Neurological	8 (4.2%)	1 (2.2%)	0.72
Sepsis	19 (9.9%)	3 (6.5%)	0.12
Trauma	8 (4.2%)	1 (2.2%)	0.69
Other	15 (7.8%)	4 (8.7%)	0.73
Intervention			
Furosemide	141 (70.9%)	33 (68.8%)	0.86
NIV	24 (12.5%)	6 (13%)	0.92
Invasive MV	138 (71.9%)	37 (80.4%)	0.24
CRRT	42 (21.9%)	27 (58.7%)	<0.01
Cumulative Fluid Balance (mL)	-1572.0 (-4669 - 420.5)	-0.5 (-3145 - 2203)	0.02
Daily Fluid Balance (mL)	-267.4 (-656.5 - 91.4)	-16.7 (-357.5 - 241.2)	0.01
Total Furosemide dose (mg)	160 (60 - 325)	200 (80 - 360)	0.65
Daily Furosemide dose (mg)	33.2 (14.4 - 55.2)	22.2 (10 - 41.6)	0.04
Outcome			
Hospital LOS, d (range)	18.6 (10.3-34.4)	19.3 (9.4-30.6)	0.90
ICU LOS, d (range)	4.5 (2-9)	8.5 (3.6-15.5)	< 0.01
Radiological PO Clearance	152 (79.2%)	25 (54.3%)	<0.01
CRRT time (h)	92 (60-191)	196 (141.9-275.4)	<0.01
Invasive MV Time (h)	42.8 (12.6-157)	156.3 (69 -343.6)	<0.01

*Values given as mean SD, median IQR or No. (%), unless otherwise indicated. LOS is length of stay. PO is Pulmonary Oedema. NIV is Non-Invasive Ventilation. MV is Invasive Mechanical Ventilation. CRRT is Continuous Renal Replacement Therapy. Scores on the Acute Physiology and Chronic Health Evaluation (APACHE) III range from 0 to 299, with higher scores indicating more severe disease and a higher risk of death. The score was calculated with the values recorded for each variable during the 24 hours for patients admitted to the Intensive Care Unit (ICU).

Table S6:

Multivariable Logistic Regression Model for Hospital Mortality across all ICU patients

	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>df</i>	<i>P value</i>	Odds Ratio	95% CI for Odds Ratio	
							Lower	Upper
RCDPO	0.467	0.196	5.668	1	0.017	1.595	1.086	2.343
Age	0.029	0.005	30.542	1	0.000	1.029	1.019	1.039
Chronic cardiovascular disease	0.561	0.300	3.499	1	0.061	1.753	0.974	3.155
Chronic Renal Failure	0.403	0.258	2.431	1	0.119	1.496	0.902	2.482
Chronic Respiratory Disease	-0.043	0.252	0.029	1	0.865	0.958	0.585	1.569
Chronic Liver Disease	1.057	0.225	22.098	1	0.000	2.879	1.852	4.474

RCDPO=radiologically and clinically diagnosed pulmonary oedema

Table S7:

Logistic Regression for hospital mortality in patients diagnosed with RCDPO in the ICU:

	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>df</i>	<i>P Value</i>	Odds Ratio	95% CI for Odds Ratio	
							Lower	Upper
Age	0.047	0.016	8.193	1	0.004	1.048	1.015	1.083
Invasive MV	0.158	0.448	0.124	1	0.725	1.171	0.486	2.820
CRRT	1.356	0.411	10.900	1	0.001	3.882	1.735	8.685
Chronic Liver Disease	0.795	0.461	2.977	1	0.084	2.215	0.898	5.464
APACHE III Score	0.015	0.008	3.798	1	0.051	1.015	1.000	1.031
Constant	-6.398	1.266	25.551	1	0.000	0.002		

RCDPO is radiologically and clinically diagnosed pulmonary oedema; MV is Mechanical Ventilation. CRRT is Continuous Renal Replacement Therapy. Scores on the Acute Physiology and Chronic Health Evaluation (APACHE) III range from 0 to 299, with higher scores indicating more severe disease and a higher risk of death. The score was calculated with the values recorded for each variable during the 24 hours for patients admitted to the Intensive Care Unit (ICU).

Table S8:

Cox Proportional Hazard model for mortality among patients with RCDPO

	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	Hazards Ratio	95.0% CI for Hazards Ratio	
							Lower	Upper
Age	0.039	0.014	7.627	1	0.006	1.040	1.011	1.070
Invasive MV	-0.106	0.399	0.071	1	0.790	0.899	0.411	1.965
CRRT	0.525	0.355	2.180	1	0.140	1.690	0.842	3.391
APACHE III Score	0.009	0.006	2.370	1	0.124	1.009	0.997	1.022
Chronic Liver Disease	0.157	0.358	0.191	1	0.662	1.169	0.580	2.359

RCDPO is radiologically and clinically diagnosed pulmonary oedema; MV is Mechanical Ventilation. CRRT is Continuous Renal Replacement Therapy. Scores on the Acute Physiology and Chronic Health Evaluation (APACHE) III range from 0 to 299, with higher scores indicating more severe disease and a higher risk of death. The score was calculated with the values recorded for each variable during the 24 hours for patients admitted to the Intensive Care Unit (ICU).