

Table S1: Results of repeated measures ANOVA including post-hoc test for all patients

Parameter	Repeated measure ANOVA	Post-hoc test (Bonferroni)
Total bilirubin	$F(1.03, 101.23) = 2.41, p = 0.371$	
Days 0-3		$p = 1.0$
Days 3-5		$p = 0.58$
Days 0-5		$p = 1.0$
Days 3-10		$p = 1.0$
Days 5-10		$p = 1.0$
Days 0-10		$p = 1.0$
Gamma glutamyltransferase	$F(25.61, 59.16) = 1.44, p < 0.001^*$	
Days 0-3		$p = 0.003^*$
Days 3-5		$p < 0.001^*$
Days 0-5		$p < 0.001^*$
Days 3-10		$p < 0.001^*$
Days 5-10		$p = 0.001^*$
Days 0-10		$p < 0.001^*$
Aspartat aminotransferase	$F(4.4, 24.0) = 3.0, p = 0.013^*$	
Days 0-3		$p = 1.0$
Days 3-5		$p = 1.0$
Days 0-5		$p = 1.0$
Days 3-10		$p = 0.445$
Days 5-10		$p = 0.125$
Days 0-10		$p = 0.180$
Alanin aminotransferase	$F(3.12, 80.67) = 2.07, p = 0.048^*$	
Days 0-3		$p = 0.014^*$
Days 3-5		$p = 1.0$
Days 0-5		$p = 0.229$
Days 3-10		$p = 1.0$
Days 5-10		$p = 1.0$
Days 0-10		$p = 1.0$
mean paO_2	$F(1.815, 95.208) = 1.73, p = 0.173$	
Days 0-3		$p = 0.881$
Days 3-5		$p = 1.0$
Days 0-5		$p = 0.543$
Days 3-10		$p = 1.0$
Days 5-10		$p = 0.364$
Days 0-10		$p = 1.0$

lowest paO²	$F(4.051, 165) = 3, p = 0.008^*$	
Days 0-3		p = 0.112
Days 3-5		p = 1.0
Days 0-5		p = 0.208
Days 3-10		p = 1.0
Days 5-10		p = 1.0
Days 0-10		p = 0.036*
mean PEEP (cmH₂O)	$F(4.811, 87.46) = 1.9, p = 0.012^*$	
Days 0-3		p = 0.238
Days 3-5		p = 0.731
Days 0-5		p = 0.108
Days 3-10		p = 0.410
Days 5-10		p = 1.0
Days 0-10		p = 0.055

Table S2: Welch-Test ECMO vs. Non-ECMO treatment, data are presented as mean and standard deviation, median and interquartile range respectively as applicable

Parameter	ECMO treatment			Non-ECMO treatment			p-value
Number of patients	21			49			-
Age (years)	53.57 ± 13.80			59.58 ± 15.43			0.117
SAPS II	40.81 ± 12.08			40.13 ± 12.40			0.785
Survival (count)	10			41			0.007*
ARDS severity (Berlin-definition)	0	9	12	4	29	16	0.024*
Cause of ARDS (pulmonary/extra-pulmonary)	14	7		26	23		0.293
Days in ICU (days)	21 (14- 34.5)			24.5 (16- 37.5)			0.958
Days on ventilator (days)	20 (12- 34.5)			21.5 (13.5- 27.75)			0.783
Days free of invasive ventilation (days)	0 (0- 0)			2 (0- 4)			0.802
mean paO ² day 0	89.65 (71.13- 121.10)			82.9 (77.30- 90.43)			0.131
mean paO ² day 3	81.85 (72.30- 95.58)			88.1 (78.2- 93.18)			0.440
mean paO ² day 5	80 (72.53- 84.45)			84.4 (75.35- 91.7)			0.874
mean paO ² day 10	83.25 (76- 92.48)			87.6 (78.9- 98.05)			0.140

lowest paO ² day 0	53 (47.75- 71)	61.5 (54- 72)	0.791
lowest paO ² day 3	58.50 (55 – 67.5)	70.5 (65.27-72.25)	0.187
lowest paO ² day 5	63.5 (57.5- 72.5)	65.5 (57- 75)	0.514
lowest paO ² day 10	67 (57.5- 77.5)	70.5 (59.75- 89.2)	0.524
mean PEEP day 0 (cmH ₂ O)	12 (9.8- 13.95)	11.5 (9.75- 13.65)	0.772
mean PEEP day 3 (cmH ₂ O)	12 (9.4- 13.7)	10 (6.7- 12.25)	0.041*
mean PEEP day 5 (cmH ₂ O)	11.7 (9- 14.25)	10 (7.45- 12.3)	0.125
mean PEEP day 10 (cmH ₂ O)	10.9 (8.85- 12)	9.75 (7.95- 11.7)	0.535
Total bilirubin day 0 (mg/dl)	0.6 (0.45- 0.95)	0.6 (0.38- 1.7)	0.223
Total bilirubin day 3 (mg/dl)	0.6 (0.45- 1.15)	0.5 (0.38- 1.1)	0.843
Total bilirubin day 5 (mg/dl)	0.8 (0.45- 2.1)	0.55 (0.3- 1)	0.273
Total bilirubin day 10 (mg/dl)	0.9 (0.5- 2.68)	0.9 (0.5- 1.5)	0.598
Gamma glutamyltransferase day 0 (U/l)	56 (44.5- 197.5)	94.5 (58.5- 202.5)	0.815
Gamma glutamyltransferase day 3 (U/l)	172 (62.5- 322.5)	154 (89.35- 265)	0.757
Gamma glutamyltransferase day 5 (U/l)	257 (126- 446)	202.5 (97.5- 317.25)	0.161
Gamma glutamyltransferase day 10 (U/l)	493 (143- 767)	272 (128.25- 786.75)	0.451
Aspartat aminotransferase day 0 (U/l)	75 (51.5- 75)	48 (30- 116)	0.374
Aspartat aminotransferase day 3 (U/l)	83.5 (47.25- 152)	57 (37- 107)	0.098
Aspartat aminotransferase day 5 (U/l)	70.5 (50.75- 119.75)	52.5 (32.5- 95)	0.198
Aspartat aminotransferase day 10 (U/l)	32.05 (32- 32.05)	32.1 (32.1- 32.1)	0.372
Alanin aminotransferase day 0 (U/l)	31 (17.5- 96.5)	17.5 (34- 64.5)	0.748
Alanin aminotransferase day 3 (U/l)	36 (23.5- 54.5)	35 (19- 77.5)	0.966
Alanin aminotransferase day 5 (U/l)	49 (28.5- 79)	40 (16.25- 72.5)	0.491
Alanin aminotransferase day 10 (U/l)	63 (30-95)	52.5 (20.75- 90.7)	0.528

Table S3: Welch-Test of subjects put in prone vs. subjects kept supine, data are presented as mean and standard deviation, median and interquartile range respectively as applicable

Parameter	Prone position	No prone position	p-value
Number of patients	35	35	-

Age (years)	56 (43- 67)			63 (53- 74)			0.148
SAPS II	39.17 ± 13.90			41.53 ± 10.27			0.484
Survival (count)	22			29			0.062
ARDS severity (Berlin-definition)	0	18	17	4	20	11	0.041*
Cause of ARDS (pulmonary/extra-pulmonary)	20		15	20		15	1.0
Days on ICU (days)	26 (17- 38)			21.5 (14- 34.5)			0.138
Days in ventilator (days)	22 (15- 34)			21 (10.5- 27.25)			0.273
Days free of invasive ventilation (days)	0 (0- 3)			1 (0- 2.5)			0.722
mean paO ² day 0	86.95 (80.58- 111.30)			82.25 (72- 91.03)			0.390
mean paO ² day 3	88.25 (79.63- 93.83)			79.15 (72.98- 91.8)			0.360
mean paO ² day 5	79.7 (72.88- 85.5)			87 (76.53- 91.8)			0.319
mean paO ² day 10	85.3 (78.08- 92.53)			91.25 (75.9- 98.58)			0.662
lowest paO ² day 0	60 (52.75- 70)			60 (51.75- 72.25)			0.431
lowest paO ² day 3	66 (56.75- 77)			63.5 (59.75- 73)			0.775
lowest paO ² day 5	62.5 (55.75- 71.5)			70.5 (57.75- 77)			0.027*
lowest paO ² day 10	68.5 (61.75- 74.75)			67.5 (57.75- 82.75)			0.938
mean PEEP day 0 (cmH ₂ O)	12.4 (10.7- 15)			10.4 (8.5- 12)			0.014*
mean PEEP day 3 (cmH ₂ O)	12 (8.8- 13.7)			10 (6.9- 12.03)			0.056
mean PEEP day 5 (cmH ₂ O)	10.3 (8.3- 12.9)			10 (7.8- 13)			0.511
mean PEEP day 10 (cmH ₂ O)	10.9 (8.7- 12)			9.75 (8- 11.45)			0.593
Total bilirubin day 0 (mg/dl)	0.65 (0.4- 1.2)			0.6 (0.4- 1.35)			0.494
Total bilirubin day 3 (mg/dl)	0.6 (0.4- 1.13)			0.5 (0.4- 0.95)			0.894
Total bilirubin day 5 (mg/dl)	0.75 (0.4- 1.58)			0.5 (0.3- 1.1)			0.904
Total bilirubin day 10 (mg/dl)	1.0 (0.5- 2.3)			0.9 (0.6- 1.25)			0.593
Gamma glutamyltransferase day 0 (U/l)	80 (47- 196.5)			94.5 (43.75- 208.5)			0.692
Gamma glutamyltransferase day 3 (U/l)	150 (76.5- 228)			180 (101.5- 286)			0.280
Gamma glutamyltransferase day 5 (U/l)	213 (128.5- 356)			206.5 (96.25- 312)			0.493
Gamma glutamyltransferase day 10 (U/l)	435 (148.75- 864.5)			256 (70- 687)			0.291

Aspartat aminotransferase day 0 (U/l)	83 (42- 166)	50 (30-84)	0.027*
Aspartat aminotransferase day 3 (U/l)	68.5 (40.8- 138.8)	57 (36- 91.25)	0.162
Aspartat aminotransferase day 5 (U/l)	62.5 (40- 110)	61 (31- 99)	0.665
Aspartat aminotransferase day 10 (U/l)	32.1 (32.05- 32.1)	32.1 (24.53- 32.1)	0.394
Alanin aminotransferase day 0 (U/l)	34 (17 -95)	33 (18- 83)	0.765
Alanin aminotransferase day 3 (U/l)	38 (21- 65)	25 (19- 76)	0.986
Alanin aminotransferase day 5 (U/l)	43 (22.5- 71)	43 (16.75- 85.5)	0.779
Alanin aminotransferase day 10 (U/l)	61 (45.75- 105)	39 (15.5- 84.5)	0.096

Table S4: Correlations (Kendall-tau test) between measured biomarkers, general characteristics, paO_2 , and PEEP. Significant correlations are marked “*” for $p < 0.05$, “***” for $p < 0.001$.

		Sever ity Berlin defini tion	Prone position	Pulmon al cause	ECM O thera py	Survival	mean paO_2 day 0	mean paO_2 day 3	mean paO_2 day 5	mean paO_2 day 10	lowest paO_2 day 0	lowest paO_2 day 3	lowest paO_2 day 5	lowest paO_2 day 10	Mean PEEP day 0	Mean PEEP day 3	Mean PEEP day5	Mean PEEP day 10
Total biliru bin day 0	r- value	0,119	-0,006	-0,050	0,025	-0,058	-0,222	-0,069	-0,032	0,010	-0,108	0,078	0,105	-0,122	-0,051	-0,059	-0,105	0,047
	p- value	0,238	0,953	0,628	0,811	0,576	0,065	0,571	0,797	0,941	0,375	0,523	0,399	0,371	0,556	0,500	0,240	0,657
Total biliru bin day 3	r- value	0,141	0,000	-0,097	0,066	-0,094	-0,266	-0,064	-0,031	0,119	-0,113	0,113	0,071	0,0056	-0,083	-0,089	-0,156	-0,049
	p- value	0,162	1,000	0,351	0,522	0,365	0,026*	0,599	0,807	0,383	0,353	0,352	0,573	0,970	0,338	0,312	0,081	0,638
Total biliru bin day 5	r- value	0,129	0,096	-0,178	0,145	-0,077	-0,226	0,085	-0,085	0,068	-0,122	0,157	0,065	0,009	0,031	-0,009	-0,054	0,022
	p- value	0,214	0,367	0,094	0,170	0,465	0,071	0,503	0,506	0,622	0,331	0,211	0,614	0,950	0,728	0,918	0,550	0,834
Total biliru bin day 10	r- value	-0,143	0,069	-0,246	0,044	-0,084	-0,105	0,208	-0,124	0,008	-0,066	0,145	0,015	0,031	0,028	0,072	0,103	0,290*
	p- value	0,262	0,596	0,057	0,735	0,516	0,499	0,175	0,428	0,960	0,669	0,349	0,923	0,844	0,799	0,508	0,343	0,013
AST day 0	r- value	0,249*	0,192	0,026	0,148	0,044	-0,017	0,004	-0,207	-0,036	-0,148	-0,048	-0,125	-0,044	0,152	0,162	0,027	-0,047
	p- value	0,011	0,055	0,798	0,138	0,658	0,892	0,974	0,096	0,793	0,222	0,692	0,316	0,745	0,069	0,056	0,756	0,645
AST day 3	r- value	0,188	0,135	0,107	0,193	0,076	-0,204	0,029	-0,065	-0,030	-0,129	0,028	0,046	-0,066	0,142	0,188*	0,146	0,023
	p- value	0,069	0,196	0,305	0,065	0,469	0,106	0,819	0,618	0,835	0,309	0,828	0,721	0,642	0,106	0,033	0,103	0,834
AST day 5	r- value	0,197	0,059	0,110	0,157	0,023	-0,266	-0,008	-0,417	0,010	-0,230	0,026	-0,191	-0,110	0,174	0,216*	0,259**	0,191
	p- value	0,064	0,584	0,310	0,146	0,834	0,040*	0,953	0,001*	0,946	0,077	0,845	0,151	0,449	0,056	0,018	0,005	0,075
AST day 10	r- value	0,115	0,115	-0,577	-0,276	0,000	-0,302	0,183	-0,137	0,297	-0,275	0,046	-0,115	-0,068	-0,236	-0,306	-0,131	0,258
	p- value	0,729	0,737	0,094	0,423	1,000	0,402	0,638	0,725	0,438	0,474	0,907	0,769	0,861	0,449	0,309	0,663	0,499
ALT day 0	r- value	0,201*	0,022	0,029	0,027	0,060	0,045	0,039	-0,238	0,041	-0,184	0,026	-0,091	0,067	0,072	0,147	0,066	-0,028

	p-value	0,040	0,828	0,771	0,788	0,552	0,709	0,750	0,054	0,763	0,128	0,829	0,468	0,625	0,390	0,082	0,450	0,782
ALT day 3	r-value	0,073	0,014	-0,005	0,033	0,177	0,003	0,043	-0,069	-0,095	-0,092	0,147	0,044	-0,064	0,090	0,126	0,121	0,081
	p-value	0,456	0,888	0,962	0,743	0,077	0,983	0,725	0,538	0,485	0,451	0,224	0,728	0,637	0,285	0,138	0,163	0,434
ALT day 5	r-value	0,120	-0,014	0,013	0,105	0,153	-0,053	0,041	-0,219	0,043	-0,234	0,023	-0,027	0,007	0,144	0,199*	0,216*	0,142
	p-value	0,240	0,895	0,900	0,312	0,143	0,677	0,745	0,085	0,754	0,061	0,857	0,836	0,959	0,098	0,023	0,015	0,172
ALT day 10	r-value	0,111	0,236	-0,065	0,061	0,268*	0,096	0,233	-0,275	0,033	-0,062	0,085	-0,186	0,141	0,218	0,229*	0,259*	0,211
	p-value	0,399	0,075	0,623	0,645	0,043	0,550	0,143	0,086	0,838	0,698	0,596	0,251	0,384	0,052	0,041	0,020	0,081
GGT day 0	r-value	0,047	-0,039	0,045	0,023	-0,059	-0,158	-0,076	-0,156	0,038	-0,057	-0,148	-0,135	0,023	-0,035	-0,034	-0,043	0,022
	p-value	0,627	0,694	0,652	0,817	0,556	0,193	0,532	0,211	0,779	0,637	0,220	0,281	0,869	0,673	0,689	0,617	0,832
GGT day 3	r-value	0,002	-0,107	-0,036	0,010	0,081	-0,184	-0,088	-0,069	0,065	-0,046	-0,031	0,001	0,121	0,005	-0,009	0,024	0,160
	p-value	0,986	0,282	0,717	0,918	0,416	0,128	0,467	0,580	0,634	0,706	0,802	0,994	0,374	0,955	0,917	0,781	0,120
GGT day 5	r-value	0,071	0,052	0,067	0,126	0,033	-0,100	0,115	-0,113	0,172	-0,098	0,060	-0,021	0,215	0,158	0,128	0,074	0,177
	p-value	0,486	0,613	0,516	0,225	0,751	0,430	0,360	0,378	0,208	0,043	0,635	0,868	0,115	0,068	0,141	0,405	0,086
GGT day 10	r-value	0,020	0,155	-0,069	0,115	0,211	0,043	0,164	-0,018	0,092	0,125	0,017	-0,042	0,159	0,202	0,279*	0,296**	0,259*
	p-value	0,875	0,230	0,590	0,371	0,102	0,787	0,294	0,908	0,557	0,424	0,911	0,790	0,307	0,063	0,010	0,006	0,029