

One-year functional decline in COVID-19 and non-COVID-19 critically ill survivors: a prospective study incorporating a pre-ICU status assessment.

Supplemental materials

Supplemental Table S1: Demographics and 1-year outcomes in Wave 1 and Wave 2 subgroups in the COVID group

Data are presented as count and percentage or as median with first and third quartiles [Q1-Q3].

BMI: body mass index; ICU: intensive care unit, LOS: length of stay; SAPS II: Simplified Acute Physiology Score; SOFA: Sequential Organ Failure Assessment

| Data | Wave 1 subgroup n=54 | Wave 2 subgroup n=78 | p value |
|--|-------------------------|-------------------------|---------|
| Demographics | | | |
| Age, y | 64 [50-70] | 63.5 [54.7-71] | 0.309 |
| Male, n (%) | 35 (64.8) | 50 (64.1) | >0.999 |
| Weight, kg | 91 [80-104] | 86 [77.2-98.8] | 0.034 |
| BMI, kg/m ² | 30.9 [27.5-35] | 30.1 [26.1-33.8] | 0.103 |
| Retired before ICU admission, n (%) | 28 (51.8) | 42 (53.8) | 0.864 |
| SOFA at admission | 4 [3-6] | 4 [3-5] | 0.371 |
| SAPS II | 34.5 [26-43] | 32.5 [26-50] | 0.811 |
| Mechanical ventilation, n (%) | 38 (70.3) | 25 (32.1) | <0.001 |
| Duration of mechanical ventilation, d | 16 [10-23] | 9 [4-28] | 0.546 |
| Neuromuscular blocking agent, n(%) | 12 (22.2) | 22 (28.2) | 0.545 |
| Duration of NMBA, d | 3 [3-3.5] | 2.5 [1-5] | 0.283 |
| Tracheostomy, n (%) | 9 (16.7) | 6 (7.7) | 0.162 |
| Vasopressor support, n (%) | 28 (51.9) | 18 (23.1) | <0.001 |
| Duration of norepinephrine administration, d | 3 [2-9] | 1.5 [1-9.2] | 0.09 |
| Renal replacement therapy, n (%) | 6 (11.1) | 4 (5.1) | 0.316 |
| Duration of renal replacement therapy, d | 18 [17-19] | 37 [35-39] | 0.2 |
| Extracorporeal membrane oxygenation, n (%) | 0 | 0 | |

| | | | |
|---|-------------|----------------|------------------|
| ICU LOS, d | 15.5 [6-27] | 6 [4-11] | <i><0.001</i> |
| Hospital LOS, d | 27 [14-46] | 17.5 [12-36.2] | 0.121 |
| 1-year outcomes | | | |
| Barthel Index < 100, n (%) | 22 (40.7) | 26 (33.3) | 0.4623 |
| Return to previous level of activities, n (%) | 34 (63) | 42 (53.8) | 0.371 |
| At least one hospital readmission, n (%) | 14 (25.9) | 20 (25.6) | >0.999 |
| At least one fall, n (%) | 4 (7.4) | 12 (15.4) | 0.188 |
| At least one fracture, n (%) | 1 (1.9) | 2 (2.6) | >0.999 |

Supplemental Table S2: Risk factors for functional decline in the global cohort.

BMI: body mass index; CKD: chronic kidney disease; ECMO: extracorporeal membrane oxygenation;

ICU: intensive care unit, LOS: length of stay; SAPS II: Simplified Acute Physiology Score; SOFA:

Sequential Organ Failure Assessment

Coeff: regression coefficient; SE: standard error

R² measures the strength of the relationship between the linear model and the dependent variable (0-100%)

| Variable | Explicative factor | Univariate | | | | Multivariate | | | | |
|----------------------|---|------------|--------|-------|---------|--------------|--------|--------|------|---------|
| | | N | Coeff | SE | p-value | N | R² (%) | Coeff | SE | p-value |
| <u>Barthel index</u> | | | | | | 216 | 20.0 | | | |
| | Age, y | 220 | -0.21 | 0.07 | 0.0037 | | | -0.12 | 0.07 | 0.072 |
| | Sex, Male | 220 | 2.19 | 1.92 | 0.25 | | | | | |
| | Weight, kg | 217 | -0.03 | 0.05 | 0.50 | | | | | |
| | BMI, kg/m² | 216 | -0.15 | 0.15 | 0.32 | | | | | |
| | Retired before ICU admission | 220 | -2.69 | 1.80 | 0.14 | | | | | |
| | Comorbidities | 220 | -2.24 | 2.65 | 0.40 | | | | | |
| | CKD (yes vs no) | 220 | -0.16 | 1.85 | 0.93 | | | | | |
| | Diabetes (yes vs no) | 220 | -3.55 | 1.88 | 0.059 | | | | | |
| | Hypertension (yes vs no) | 220 | 0.62 | 1.80 | 0.73 | | | | | |
| | Cardiovascular (yes vs no) | 220 | -3.02 | 2.19 | 0.17 | | | | | |
| | Respiratory (yes vs no) | 219 | -3.16 | 4.81 | 0.51 | | | | | |
| | Immunosuppression (yes vs no) | 220 | -1.05 | 0.73 | 0.15 | | | | | |
| | <i>Total number of these comorbidities (0 to 6)</i> | | | | | | | | | |
| | Admission type (surgical vs medical) | 220 | 1.67 | 2.07 | 0.42 | | | | | |
| | Admission failure | 220 | | | 0.93 | | | | | |
| | Cardiovascular (vs pulmonary) | | 0.27 | 2.24 | | | | | | |
| | Neurologic (vs pulmonary) | | -2.56 | 4.38 | | | | | | |
| | Other (vs pulmonary) | | 0.69 | 3.20 | | | | | | |
| | SOFA at admission | 147 | -0.53 | 0.40 | 0.19 | | | | | |
| | SAPS II | 132 | -0.16 | 0.09 | 0.069 | | | | | |
| | COVID-19 (yes vs no) | 220 | 0.95 | 1.83 | 0.61 | | | | | |
| | Mechanical ventilation (yes vs no) | 220 | -4.94 | 1.77 | 0.0056 | | | | | |
| | Neuromuscular blocking agent (yes vs no) | 220 | -5.25 | 2.18 | 0.017 | | | | | |
| | Tracheostomy (yes vs no) | 220 | -4.76 | 3.35 | 0.16 | | | | | |
| | Vasopressor support (yes vs no) | 220 | -5.13 | 1.84 | 0.0058 | | | | | |
| | Renal replacement therapy (yes vs no) | 220 | -12.94 | 3.86 | 0.0010 | | | -12.86 | 4.32 | 0.0032 |
| | ECMO (yes vs no) | 220 | 4.45 | 13.37 | 0.74 | | | | | |
| | ICU LOS, d (log) | 220 | -1.31 | 0.83 | 0.12 | | | 2.92 | 1.37 | 0.034 |
| | Hospital LOS, d (log) | 216 | -4.47 | 0.98 | <0.0001 | | | -4.04 | 1.59 | 0.012 |
| | Home at hospital discharge (yes vs no) | 220 | 11.45 | 3.28 | 0.0006 | | | 6.23 | 3.32 | 0.062 |
| | Rehabilitation (yes vs no) | 220 | -8.50 | 1.93 | <0.0001 | | | -4.20 | 2.36 | 0.077 |
| <u>EQ-5D score</u> | | | | | | 216 | 19.3 | | | |
| | Age, y | 220 | 0.00 | 0.01 | 0.84 | | | | | |
| | Sex, Male | 220 | 0.03 | 0.28 | 0.92 | | | | | |
| | Weight, kg | 217 | 0.01 | 0.01 | 0.061 | | | | | |
| | BMI, kg/m² | 216 | 0.03 | 0.02 | 0.20 | | | | | |
| | Retired before ICU admission | 220 | -0.48 | 0.26 | 0.066 | | | -0.59 | 0.25 | 0.019 |
| | Comorbidities | | | | | | | | | |
| | CKD (yes vs no) | 220 | 0.00 | 0.38 | 0.99 | | | | | |
| | Diabetes (yes vs no) | 220 | 0.37 | 0.26 | 0.16 | | | | | |
| | Hypertension (yes vs no) | 220 | 0.02 | 0.27 | 0.95 | | | | | |
| | Cardiovascular (yes vs no) | 220 | -0.41 | 0.26 | 0.11 | | | | | |
| | Respiratory (yes vs no) | 220 | 0.49 | 0.31 | 0.12 | | | 0.46 | 0.29 | 0.12 |
| | Immunosuppression (yes vs no) | 219 | -0.46 | 0.69 | 0.51 | | | | | |

| Variable | Explicative factor | N | Univariate | | | Multivariate | | | |
|-------------------------------|---|-----|------------|-------|---------|--------------|--------------------|-------|-------------|
| | | | Coeff | SE | p-value | N | R ² (%) | Coeff | SE p-value |
| | <i>Total number of these comorbidities (0 to 6)</i> | 220 | 0.04 | 0.11 | 0.72 | | | | |
| | Admission type (surgical vs medical) | 220 | -0.64 | 0.30 | 0.032 | | | | |
| | Admission failure | 220 | | | 0.25 | | | | |
| | Cardiovascular (vs pulmonary) | | -0.54 | 0.32 | | | | | |
| | Neurologic (vs pulmonary) | | 0.41 | 0.62 | | | | | |
| | Other (vs pulmonary) | | 0.21 | 0.46 | | | | | |
| | SOFA at admission | 147 | 0.07 | 0.06 | 0.31 | | | | |
| | SAPS II | 132 | 0.03 | 0.01 | 0.051 | | | | |
| | COVID-19 (yes vs no) | 220 | 0.16 | 0.26 | 0.54 | | | | |
| | Mechanical ventilation (yes vs no) | 220 | 0.60 | 0.26 | 0.020 | | | | |
| | Neuromuscular blocking agent (yes vs no) | 220 | 1.25 | 0.31 | <0.0001 | | | 0.67 | 0.35 0.055 |
| | Tracheostomy (yes vs no) | 220 | 0.62 | 0.48 | 0.20 | | | -0.77 | 0.52 0.14 |
| | Vasopressor support (yes vs no) | 220 | 0.75 | 0.26 | 0.0047 | | | | |
| | Renal replacement therapy (yes vs no) | 220 | 1.52 | 0.56 | 0.0072 | | | | |
| | ECMO (yes vs no) | 220 | 4.71 | 1.90 | 0.014 | | | 2.79 | 1.84 0.13 |
| | ICU LOS, d (log) | 220 | 0.48 | 0.13 | 0.0003 | | | | |
| | Hospital LOS, d (log) | 216 | 0.72 | 0.14 | <0.0001 | | | 0.64 | 0.16 0.0001 |
| | Home at hospital discharge (yes vs no) | 220 | -1.06 | 0.48 | 0.027 | | | -0.76 | 0.48 0.11 |
| | Rehab (yes vs no) | 220 | 1.22 | 0.28 | <0.0001 | | | | |
| EQ-5D VAS | | | | | | 216 | 18.6 | | |
| | Age, y | 220 | -0.01 | 0.12 | 0.92 | | | | |
| | Sex, Male | 220 | 0.82 | 3.11 | 0.79 | | | | |
| | Weight, kg | 217 | 0.00 | 0.08 | 0.95 | | | | |
| | BMI, kg/m ² | 216 | 0.08 | 0.24 | 0.74 | | | | |
| | Retired before ICU admission | 220 | 4.09 | 2.92 | 0.16 | | | 4.33 | 2.81 0.12 |
| | Comorbidities | | | | | | | | |
| | CKD (yes vs no) | 220 | 0.30 | 4.30 | 0.94 | | | | |
| | Diabetes (yes vs no) | 220 | -7.43 | 2.95 | 0.012 | | | -4.41 | 2.79 0.12 |
| | Hypertension (yes vs no) | 220 | 3.83 | 3.05 | 0.21 | | | | |
| | Cardiovascular (yes vs no) | 220 | 8.73 | 2.86 | 0.0025 | | | | |
| | Respiratory (yes vs no) | 220 | -1.38 | 3.55 | 0.70 | | | | |
| | Immunosuppression (yes vs no) | 219 | 0.14 | 7.78 | 0.99 | | | | |
| | <i>Total number of these comorbidities (0 to 6)</i> | 220 | 0.73 | 1.19 | 0.54 | | | | |
| | Admission type (surgical vs medical) | 220 | 9.80 | 3.30 | 0.0033 | | | | |
| | Admission failure | 220 | | | 0.0010 | | | | 0.020 |
| | Cardiovascular (vs pulmonary) | | 13.42 | 3.49 | | | | 9.50 | 5.46 |
| | Neurologic (vs pulmonary) | | -6.18 | 6.84 | | | | -0.62 | 4.74 |
| | Other (vs pulmonary) | | 2.82 | 4.99 | | | | -8.10 | 7.98 |
| | SOFA at admission | 147 | -0.34 | 0.70 | 0.62 | | | | |
| | SAPS II | 132 | -0.13 | 0.15 | 0.39 | | | | |
| | COVID-19 (yes vs no) | 220 | -8.65 | 2.91 | 0.0033 | | | | |
| | Mechanical ventilation (yes vs no) | 220 | -4.91 | 2.89 | 0.091 | | | | |
| | Neuromuscular blocking agent (yes vs no) | 220 | -11.49 | 3.49 | 0.0012 | | | | |
| | Tracheostomy (yes vs no) | 220 | -11.88 | 5.39 | 0.029 | | | | |
| | Vasopressor support (yes vs no) | 220 | -4.95 | 3.02 | 0.10 | | | | |
| | Renal replacement therapy (yes vs no) | 220 | -16.75 | 6.31 | 0.0085 | | | | |
| | ECMO (yes vs no) | 220 | -35.24 | 21.51 | 0.10 | | | | |
| | ICU LOS, d (log) | 220 | -4.51 | 1.47 | 0.0025 | | | | |
| | Hospital LOS, d (log) | 216 | -7.27 | 1.57 | <0.0001 | | | -5.07 | 1.66 0.0025 |
| | Home at hospital discharge (yes vs no) | 220 | 13.54 | 5.38 | 0.012 | | | 15.86 | 5.38 0.0036 |
| | Rehab (yes vs no) | 220 | -12.00 | 3.15 | 0.0002 | | | | |
| IPAQ-SF (MET-min/week) | | | | | | 217 | 12.1 | | |
| | Age, y | 220 | 20.1 | 10.6 | 0.06 | | | | |
| | Sex, Male | 220 | -337.5 | 284.2 | 0.24 | | | | |
| | Weight, kg | 217 | -14.1 | 7.1 | 0.049 | | | -13.9 | 7.0 0.049 |
| | BMI, kg/m ² | 216 | -12.3 | 21.7 | 0.57 | | | | |
| | Retired before ICU admission | 220 | 767.3 | 263.7 | 0.0040 | | | 679.2 | 262.2 0.010 |
| | Comorbidities | | | | | | | | |
| | CKD (yes vs no) | 220 | 878.9 | 389.4 | 0.025 | | | 664.8 | 381.6 0.083 |
| | Diabetes (yes vs no) | 220 | -42.4 | 273.7 | 0.88 | | | | |
| | Hypertension (yes vs no) | 220 | 443.5 | 278.7 | 0.11 | | | | |
| | Cardiovascular (yes vs no) | 220 | 52.4 | 266.9 | 0.84 | | | | |
| | Respiratory (yes vs no) | 220 | 341.9 | 324.3 | 0.29 | | | | |
| | Immunosuppression (yes vs no) | 219 | 401.2 | 713.0 | 0.57 | | | | |

| Variable | Explicative factor | N | Univariate | | | Multivariate | | | |
|----------|---|-----|------------|--------|-------------|--------------|--------------------|---------|---------------|
| | | | Coeff | SE | p-value | N | R ² (%) | Coeff | SE p-value |
| | <i>Total number of these comorbidities (0 to 6)</i> | 220 | 184.4 | 108.4 | <u>0.09</u> | | | | |
| | Admission type (surgical vs medical) | 220 | -423.8 | 306.4 | <u>0.17</u> | | | -607.0 | 306.7 0.049 |
| | Admission failure | 220 | | | <u>0.15</u> | | | | |
| | Cardiovascular (vs pulmonary) | | -221.9 | 327.5 | | | | | |
| | Neurologic (vs pulmonary) | | -1175.9 | 641.8 | | | | | |
| | Other (vs pulmonary) | | 504.6 | 468.5 | | | | | |
| | SOFA at admission | 147 | 37.5 | 62.2 | 0.55 | | | | |
| | SAPS II | 132 | 2.1 | 12.6 | 0.87 | | | | |
| | COVID-19 (yes vs no) | 220 | 195.4 | 271.7 | 0.47 | | | | |
| | Mechanical ventilation (yes vs no) | 220 | -185.7 | 266.3 | 0.49 | | | | |
| | Neuromuscular blocking agent (yes vs no) | 220 | -14.0 | 327.7 | 0.97 | | | | |
| | Tracheostomy (yes vs no) | 220 | -54.6 | 499.1 | 0.91 | | | | |
| | Vasopressor support (yes vs no) | 220 | -5.3 | 277.8 | 0.98 | | | | |
| | Renal replacement therapy (yes vs no) | 220 | 166.5 | 586.8 | 0.78 | | | | |
| | ECMO (yes vs no) | 220 | -6160.8 | 1936.8 | 0.0017 | | | -5529.9 | 1899.4 0.0040 |
| | ICU LOS, d (log) | 220 | -50.1 | 137.7 | 0.72 | | | | |
| | Hospital LOS, d (log) | 216 | 62.1 | 153.5 | 0.69 | | | | |
| | Home at hospital discharge (yes vs no) | 220 | 387.0 | 498.4 | 0.44 | | | | |
| | Rehab (yes vs no) | 220 | -271.4 | 297.2 | 0.36 | | | | |

Supplemental Figure S1. One-year functional assessment (grey boxes) compared to pre-ICU status (baseline, white boxes), in the Wave 1 and Wave 2 subgroups in the COVID group.

**: significant difference between baseline status and 1-y status within a group*

