**Online Supplement**

**KEY FACTORS ASSOCIATED WITH PULMONARY SEQUELAE IN THE FOLLOW-UP OF CRITICALLY ILL COVID-19 PATIENTS**

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# **Comorbidity checklist**

* Obesity (BMI > 30 kg/m2)
* Hypertension
* Diabetes mellitus (Type I / II)
* Chronic disease (including cirrhosis, NYHA type IV, severe COPD, chronic dialysis, immunodeficiency)
* Chronic heart disease
* Chronic renal disease (< 60mL/min/1.73m2, transplant)
* Chronic moderate liver disease (cirrhosis with portal hypertension or bleeding varicose)
* Chronic mild liver disease (cirrhosis without portal hypertension or chronic hepatitis)
* Chronic neurological disease
* Chronic pulmonary disease
	+ Type of Chronic pulmonary disease: COPD, Bronchiectasis, Interstitial
	+ Patient with a chronic pathogen colonization (indicate type)
* Asthma
* Dementia
* Rheumatic disease
* Gastrointestinal/pancreatic disorders
* Endocrine disorders
* Metabolic disorders
* Malnutrition
* Genitourinary disorders
* Hematology disorders
* Active malignant neoplasm (solid or hematologic)
* Solid organ transplantation
* Bone marrow transplant
* HIV or AIDS
* Other immunological disorders

# **eTable 1. Baseline characteristics according to patients with and without follow-up.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **ALL** | **Included** | **Without follow-up** |  |
|  | n = 3860 | n = 1327 | n = 2533 |  |
|  | Median [p25;p75]or n(%) | Median [p25;p75]or n(%) | Median [p25;p75]or n(%) | N |
| **Sociodemographic data** |  |  |  |  |
| Age, *years* | 61.0 [51.0;68.0] | 60.0 [53.0;67.0] | 61.0 [51.0;69.0] | 3860 |
| Sex, *woman* | 1209 (31.4%) | 369 (27.8%) | 840 (33.2%) | 3856 |
| Body mass index | 28.9 [26.0;32.3] | 28.7 [26.2;32.1] | 29.0 [25.9;32.4] | 3459 |
| Smoking history |  |  |  | 3860 |
| *Non smoker* | 2319 (60.1%) | 768 (57.9%) | 1551 (61.2%) |  |
| *Current* | 199 (5.16%) | 57 (4.30%) | 142 (5.61%) |  |
| *Former* | 1077 (27.9%) | 457 (34.4%) | 620 (24.5%) |  |
| *Unknown* | 265 (6.87%) | 45 (3.39%) | 220 (8.69%) |  |
| **Comorbidities** |  |  |  |  |
| Obesity | 1437 (37.3%) | 475 (35.8%) | 962 (38.1%) | 3853 |
| Hypertension | 1744 (45.2%) | 595 (44.8%) | 1149 (45.4%) | 3860 |
| Diabetes mellitus (Type I / II) | 814 (21.1%) | 233 (17.6%) | 581 (22.9%) | 3859 |
| Chronic heart disease | 392 (10.2%) | 127 (9.57%) | 265 (10.5%) | 3859 |
| Chronic renal disease | 203 (5.26%) | 58 (4.37%) | 145 (5.72%) | 3860 |
| Chronic moderate liver disease | 35 (0.91%) | 11 (0.83%) | 24 (0.95%) | 3860 |
| Chronic mild liver disease | 83 (2.15%) | 28 (2.11%) | 55 (2.17%) | 3860 |
| Chronic neurological disease | 194 (5.03%) | 48 (3.62%) | 146 (5.76%) | 3860 |
| Chronic lung disease | 305 (7.90%) | 98 (7.39%) | 207 (8.17%) | 3860 |
| *COPD* | 142 (3.68%) | 54 (4.07%) | 88 (3.47%) | 3860 |
| *Bronchiectasis* | 14 (0.36%) | 6 (0.45%) | 8 (0.32%) | 3860 |
| *Interstitial lung disease* | 9 (0.23%) | 1 (0.08%) | 8 (0.32%) | 3860 |
| *Other*  | 124 (3.21%) | 38 (2.86%) | 86 (3.40%) | 3860 |
| Asthma | 249 (6.45%) | 82 (6.18%) | 167 (6.59%) | 3860 |
| Dementia | 17 (0.44%) | 1 (0.08%) | 16 (0.63%) | 3860 |
| Rheumatic disease | 164 (4.25%) | 67 (5.05%) | 97 (3.83%) | 3860 |
| Gastrointestinal/pancreatic disorders | 256 (6.64%) | 95 (7.16%) | 161 (6.36%) | 3857 |
| Endocrine disorders | 313 (8.13%) | 94 (7.08%) | 219 (8.68%) | 3851 |
| Metabolic disorders | 914 (23.7%) | 340 (25.6%) | 574 (22.7%) | 3852 |
| Malnutrition | 7 (0.18%) | 1 (0.08%) | 6 (0.24%) | 3860 |
| Genitourinary disorders | 189 (4.90%) | 65 (4.90%) | 124 (4.90%) | 3858 |
| Hematology disorders | 180 (4.66%) | 50 (3.77%) | 130 (5.13%) | 3860 |
| Malignant neoplasm | 117 (3.03%) | 33 (2.49%) | 84 (3.32%) | 3860 |
| HIV | 24 (0.62%) | 4 (0.30%) | 20 (0.79%) | 3859 |
| Immunological disorders | 63 (1.63%) | 17 (1.28%) | 46 (1.82%) | 3857 |
| Solid organ transplantation | 56 (1.45%) | 14 (1.06%) | 42 (1.66%) | 3857 |
| Bone Marrow Transplantation | 2 (0.05%) | 0 (0.00%) | 2 (0.08%) | 3857 |
| Hospital admission in the last 30 days | 102 (2.65%) | 24 (1.81%) | 78 (3.08%) | 3856 |
| Other risk factors | 867 (22.5%) | 357 (26.9%) | 510 (20.1%) | 3858 |
| **ICU data**  |  |  |  |  |
| Hospital stay, *days* | 26.0 [16.0;45.0] | 27.0 [17.0;43.0] | 26.0 [16.0;46.5] | 3680 |
| ICU stay, *days* | 13.0 [7.00;28.0] | 14.0 [7.00;28.0] | 13.0 [7.00;27.0] | 3859 |
| Hospitalization days before ICU, *days* | 1.00 [0.00;3.00] | 1.00 [0.00;3.00] | 2.00 [0.00;3.00] | 3583 |
| Symptoms to hospital admission, *days* | 7.00 [5.00;9.00] | 7.00 [5.00;10.0] | 7.00 [4.00;9.00] | 3675 |
| Symptoms to ICU admission, *days* | 9.00 [7.00;12.0] | 9.00 [7.00;12.0] | 9.00 [7.00;12.0] | 3717 |
| Alive 28 post-ICU discharge, *yes* | 3719 (97.6%) | 1284 (98.0%) | 2435 (97.3%) | 3812 |
| APACHE score | 11.0 [8.00;14.0] | 10.0 [8.00;13.0] | 11.0 [8.00;15.0] | 2291 |
| SOFA score | 4.00 [3.00;7.00] | 4.00 [3.00;7.00] | 4.00 [3.00;7.00] | 2779 |
| SOFA hemodynamic component | 0.00 [0.00;4.00] | 0.00 [0.00;4.00] | 0.00 [0.00;4.00] | 3650 |
| SOFA renal component | 0.00 [0.00;0.00] | 0.00 [0.00;0.00] | 0.00 [0.00;0.00] | 3788 |
| **Arterial blood gas at admission** |  |  |  |  |
| pH | 7.43 [7.36;7.46] | 7.43 [7.37;7.46] | 7.42 [7.35;7.46] | 3488 |
| Partial pressure of oxygen, *mmHg* | 77.0 [63.6;100] | 76.0 [62.2;98.0] | 78.0 [64.0;101] | 3338 |
| Partial pressure of carbon dioxide, *mmHg* | 38.0 [33.0;45.0] | 37.6 [33.0;44.0] | 38.0 [33.3;45.0] | 3357 |
| Bicarbonate, *mmol/L* | 24.3 [22.2;27.0] | 24.5 [22.1;27.0] | 24.3 [22.2;27.0] | 3328 |
| Oxygen saturation, *%* | 95.0 [91.6;97.0] | 95.0 [91.7;97.0] | 95.0 [91.5;97.0] | 3548 |
| FiO2, *%* | 70.0 [50.0;100] | 70.0 [50.0;100] | 75.0 [50.0;100] | 3702 |
| PaO2 to FiO2 ratio  | 116 [84.0;169] | 115 [84.0;166] | 116 [83.8;171] | 3240 |
| Respiratory rate, *rpm* | 25.0 [21.0;31.0] | 25.0 [22.0;31.0] | 25.0 [21.0;31.0] | 3466 |
| **Laboratory data at admission** |  |  |  |  |
| Hemoglobin, *g/dL* | 13.2 [12.1;14.4] | 13.2 [12.1;14.3] | 13.3 [12.0;14.4] | 3718 |
| White blood count, *×109/L* | 8.60 [6.26;11.9] | 8.41 [6.30;11.7] | 8.70 [6.20;12.1] | 3787 |
| Lymphocyte count, *×109/L* | 0.70 [0.50;1.00] | 0.70 [0.50;1.00] | 0.70 [0.50;1.00] | 3731 |
| Neutrophil count, *×109/L* | 7.33 [5.08;10.5] | 7.24 [5.10;10.1] | 7.40 [5.06;10.6] | 3716 |
| Monocyte count, *×109/L* | 0.35 [0.20;0.53] | 0.37 [0.20;0.51] | 0.35 [0.20;0.53] | 3669 |
| Eosinophil count, *×109/L* | 0.00 [0.00;0.01] | 0.00 [0.00;0.01] | 0.00 [0.00;0.01] | 3669 |
| Basophil count, *×109/L* | 0.01 [0.00;0.02] | 0.00 [0.00;0.02] | 0.01 [0.00;0.02] | 3666 |
| Hematocrit, *%* | 39.7 [36.5;42.9] | 39.7 [36.7;42.7] | 39.8 [36.4;43.0] | 3742 |
| Platelet count, *×109/L* | 237 [184;312] | 237 [189;309] | 238 [182;312] | 3782 |
| Prothrombin, *seconds* | 13.0 [12.1;14.2] | 13.1 [12.3;14.3] | 13.0 [12.0;14.1] | 2804 |
| International Normalized Ratio | 1.14 [1.06;1.24] | 1.14 [1.07;1.24] | 1.14 [1.06;1.24] | 3391 |
| D-dimer, *mg/L* | 832 [456;1782] | 800 [429;1635] | 860 [472;1834] | 3292 |
| D-dimer, *log* | 2.92 [2.66;3.25] | 2.90 [2.63;3.21] | 2.93 [2.67;3.26] | 3288 |
| C-Reactive Protein, *mg/dL* | 126 [63.0;214] | 137 [70.0;225] | 121 [60.0;207] | 3599 |
| Glucose, *mg/dL* | 138 [111;181] | 132 [108;173] | 141 [113;185] | 3718 |
| Bilirubin, *mg/dL* | 0.59 [0.40;0.80] | 0.60 [0.43;0.84] | 0.56 [0.40;0.80] | 3343 |
| Aspartate transaminase, *U/L* | 45.0 [31.0;71.0] | 47.0 [32.0;71.2] | 44.0 [30.1;70.0] | 2990 |
| Alanine Aminotransferase, *U/L* | 41.0 [26.0;67.0] | 44.0 [27.0;67.0] | 39.0 [25.0;66.0] | 3528 |
| Urea, *mg/dL* | 42.0 [31.0;57.0] | 41.0 [29.4;54.0] | 43.0 [32.0;59.0] | 3356 |
| Blood urea nitrogen, mg/dL | 19.6 [14.5;26.6] | 19.1 [13.6;25.2] | 20.1 [14.9;27.5] | 3347 |
| Lactate, *mmol/L* | 1.40 [1.10;1.90] | 1.35 [1.05;1.80] | 1.40 [1.10;1.90] | 2679 |
| Creatinine, *mg/dL* | 0.80 [0.66;1.00] | 0.80 [0.65;0.99] | 0.80 [0.66;1.00] | 3792 |
| Creatine Kinase, *U/L* | 86.0 [45.0;184] | 83.0 [50.0;174] | 87.0 [44.0;191] | 2157 |
| Procalcitonine, *ng/mL* | 0.18 [0.09;0.42] | 0.18 [0.09;0.39] | 0.18 [0.08;0.44] | 2714 |
| Lactate Dehydrogenase, *U/L* | 448 [344;600] | 457 [350;624] | 442 [342;592] | 3192 |
| Sodium, *mmol/L* | 138 [135;140] | 138 [135;140] | 138 [135;141] | 3771 |
| Potassium, *mmol/L* | 4.00 [3.70;4.40] | 3.98 [3.60;4.30] | 4.05 [3.70;4.40] | 3745 |
| Albumin, *g/dL* | 3.20 [2.90;3.60] | 3.20 [2.90;3.60] | 3.20 [2.90;3.60] | 2075 |
| Troponin T, *ng/L* | 0.01 [0.01;0.02] | 0.01 [0.01;0.02] | 0.01 [0.01;0.03] | 664 |
| Troponin I, *ng/L* | 0.01 [0.00;0.02] | 0.01 [0.00;0.02] | 0.01 [0.00;0.02] | 1350 |
| Ferritin, *ng/mL* | 1121 [592;1822] | 1226 [698;1908] | 1045 [545;1765] | 2091 |
| Ferritin, *log* | 3.05 [2.77;3.26] | 3.09 [2.84;3.28] | 3.02 [2.74;3.25] | 2091 |
| IL6, *pg/mL* | 74.4 [24.4;195] | 84.4 [26.7;209] | 63.0 [23.1;186] | 1357 |
| IL6, *log* | 1.84 [1.40;2.25] | 1.91 [1.43;2.27] | 1.79 [1.37;2.24] | 1296 |
| NT-proBNP, *pg/mL* | 292 [120;876] | 250 [107;538] | 330 [134;1065] | 756 |
| **Pharmacological treatment** |  |  |  |  |
| Corticosteroids | 3293 (85.6%) | 1104 (83.3%) | 2189 (86.8%) | 3847 |
| Anticoagulant | 3706 (96.4%) | 1288 (97.1%) | 2418 (96.0%) | 3845 |
| Antibiotics | 3550 (92.4%) | 1244 (93.7%) | 2306 (91.7%) | 3842 |
| Hydroxychloroquine | 1671 (43.5%) | 695 (52.4%) | 976 (38.7%) | 3845 |
| Remdesivir | 640 (16.6%) | 164 (12.4%) | 476 (18.9%) | 3845 |
| Tocilizumab | 1495 (38.9%) | 557 (42.0%) | 938 (37.2%) | 3845 |
| Convalescent plasm | 174 (4.53%) | 60 (4.52%) | 114 (4.53%) | 3845 |
| **Procedures** |  |  |  |  |
| Ventilatory support |  |  |  |  |
| High-flow nasal cannula | 2718 (80.7%) | 969 (83.7%) | 1749 (79.1%) | 3369 |
| NIMV | 1277 (33.3%) | 459 (34.7%) | 818 (32.6%) | 3830 |
| IMV | 2568 (66.6%) | 849 (64.0%) | 1719 (67.9%) | 3858 |
| *IMV, days* | 14.0 [8.00;27.0] | 16.0 [9.00;27.0] | 14.0 [8.00;27.0] | 2501 |
| *Delay ICU start IMV, days* | 0.00 [0.00;1.00] | 0.00 [0.00;1.00] | 0.00 [0.00;1.00] | 2404 |
| Prone position | 2008 (52.1%) | 726 (54.7%) | 1282 (50.7%) | 3854 |
| Abbreviations: COPD, chronic obstructive pulmonary disease; ICU, intensive care unit; HIV, human immunodeficiency viruses; NIMV, non-invasive mechanic ventilation; IMV, invasive mechanic ventilation. |

# **eTable 2. External validation of selected clinical parameters at hospitalization related to lung diffusion capacity impairment at the follow-up visit.**

|  |  |  |  |
| --- | --- | --- | --- |
| **DLCO** | **>80%****(n=79)** | **<80%****(n=121)** | **OR (univariable)** |
| **Predictors** |  |  |  |
| Age, *years* | 54.1 (11.0) | 60.2 (11.6) | 1.71 (1.27-2.34, p=0.001) |
| Sex, woman | 29 (36.7%) | 32 (26.4%) | 0.62 (0.34-1.14, p=0.125) |
| Smoking history |  |  |  |
| *Non smoker* | 46 (58.2%) | 53 (43.8%) | - |
| *Current / Former* | 33 (41.8%) | 68 (56.2%) | 1.79 (1.01-3.19, p=0.047) |
| NIMV duration, *days* | 3.0 (2.7) | 4.4 (6.6) | 1.65 (1.05-2.83, p=0.055) |
| IMV duration, *days* | 3.2 (4.9) | 9.9 (15.6) | 2.40 (1.50-4.38, p=0.001) |
| Infectious complication | 7 (8.9) | 13 (10.7) | 1.24 (0.48-3.43, p=0.665) |
| EGFR, *mL/min/1.73m2* | 102.1 (17.6) | 94.2 (21.4) | 0.63 (0.44-0.88, p=0.009) |
| **DLCO**  | **>60%****(n=160)** | **<60%****(n=40)** | **OR (univariable)** |
| **Predictors** |  |  |  |
| Age, *years* | 56.5 (11.8) | 62.8 (10.0) | 1.88 (1.26-2.93, p=0.003) |
| Chronic lung disease | 6 (3.8%) | 2 (5.0%) | 1.35 (0.19-6.13, p=0.719) |
| IMV duration, *days* | 5.0 (8.7) | 16.4 (21.0) | 2.09 (1.50-3.06, p<0.001) |
| Urea at ICU admission, *mg/dL* | 47.2 (20.1) | 62.7 (39.8) | 1.67 (1.21-2.40, p=0.003) |
| EGFR, *mL/min/1.73m2* | 99.8 (18.1) | 87.6 (25.6) | 0.59 (0.42-0.81, p=0.001) |
| Abbreviations: DLCO: lung diffusing capacity; NIMV, non-invasive mechanic ventilation; IMV, invasive mechanic ventilation; EGFR, Estimated Glomerular Filtration Rate; ICU, intensive care unit. Note: odds ratios are presented for the 1-SD change of continuous variable. In descriptive data, mean (SD) or n(%) accordingly. |

# **eTable 3. Sensitivity analysis including the time since hospital discharge as a confounder of the associations between clinical parameters at hospitalization and lung diffusion capacity impairment, CT scan findings and spirometry parameters at the follow-up visit.**

|  |  |
| --- | --- |
| **DLCO (<80%)** | **OR (complete cases)** |
| **Predictors** |  |
| Age, *years* | 1.21 (1.05-1.40, p=0.010) |
| Sex |  |
| *Men* | - |
| *Women* |  1.88 (1.41-2.54, p<0.001) |
| Smoking history |  |
| *Non smoker* | - |
| *Former* | 1.76 (1.33-2.34, p<0.001) |
| *Current* | 2.26 (1.17-4.69, p=0.020) |
| NIMV duration, *days* | 1.33 (1.11-1.63, p=0.004) |
| IMV duration, *days* | 1.62 (1.34-1.98, p<0.001) |
| Infectious complication |  |
| *No* | - |
| *Yes* | 1.20 (0.88-1.64, p=0.246) |
| Estimated Glomerular Filtration Rate, *mL/min/1.73m2* | 0.73 (0.62-0.86, p<0.001) |
| Time since hospital discharge, months  | 0.77 (0.68-0.87, p<0.001) |
| **DLCO (<60%)** | **OR (multiple imputation)** |
| **Predictors** |  |
| Age, *years* | 1.41 (1.18-1.68, p<0.001) |
| Chronic pulmonary disease |  |
| *No* |  |
| *Yes* | 2.09 (1.28-3.39, p=0.003) |
| IMV duration, *days* | 1.60 (1.40-1.83, p<0.001) |
| Urea nitrogen ICU admission, *mg/dL* | 1.21 (1.01-1.47, p=0.046) |
| Estimated Glomerular Filtration Rate, *mL/min/1.73m2* | 0.91 (0.74-1.11, p=0.328) |
| Time since hospital discharge, months  | 0.73 (0.62-0.85, p<0.001) |
| **DLCO (continuous)** | **OR (multiple imputation)** |
| **Predictors** |  |
| Age, *years* | -2.71 (-3.77 to -1.66, p<0.001) |
| IMV duration, *days* | -4.24 (-5.17 to -3.30, p<0.001) |
| Estimated Glomerular Filtration Rate, *mL/min/1.73m2* |  2.62 (1.57 to 3.67, p<0.001) |
| Time since hospital discharge, months  |  2.17 (1.25 to 3.10, p<0.001) |
| **CT FINDINGS** |
|  **Persistent pulmonary infiltrate** | **OR (multiple imputation)** |
| **Predictors**  |  |
| Antiviral treatment |  |
| *No* | - |
| *Yes* |  1.43 (0.94-2.20, p=0.100) |
| Prone position |  |
| *No* | - |
| *Yes* | 1.72 (1.17-2.55, p=0.006) |
| ARDS complication |  |
| *No* | - |
| *Yes* | 1.35 (0.88-2.10, p=0.169) |
| Neutrophil count ICU admission, *×109/L* | 1.17 (0.96-1.43, p=0.118) |
| Platelet count ICU admission, *×109/L* | 1.18 (0.99-1.40, p=0.060) |
| APACHE score | 1.14 (0.95-1.37, p=0.145) |
| Partial pressure of carbon dioxide, *mmHg* (max) | 1.08 (0.88-1.32, p=0.442) |
| Time since hospital discharge, months | 1.01 (0.84-1.20, p=0.933) |
| **Emphysema** | **OR (multiple imputation)** |
| **Predictors**  |  |
| Pulmonary embolism |  |
| *No* | - |
| *Yes* | 3.85 (1.24-11.38, p=0.015) |
| Time since hospital discharge, months  | 1.34 (0.79-2.21, p=0.254) |
| **Fibrotic lesions** | **OR (multiple imputation)** |
| **Predictors**  |  |
| NIMV duration, *days* | 1.25 (1.08-1.46, p=0.003) |
| IMV duration, *days* | 1.17 (0.97-1.40, p=0.106) |
| Prone duration, *days* | 1.18 (0.99-1.41, p=0.065) |
| Bacterial pneumonia  |  |
| *No* | - |
| *Yes* | 1.74 (1.18-2.56, p=0.005) |
| Time since hospital discharge, months | 1.12 (0.96-1.30, p=0.145) |
| **SPIROMETRY** |
| **FEV1** | **OR (multiple imputation)** |
| **Predictors**  |  |
| Chronic renal disease  |  |
| *No* | - |
| *Yes* | 2.71 (1.48-4.96, p=0.001) |
| Chronic lung disease |  |
| *No* |  |
| *Yes* | 1.89 (1.17-3.02, p=0.009) |
| IMV duration, *days* | 1.35 (1.19-1.53, p<0.001) |
| Urea nitrogen ICU admission, *mg/dL* | 1.15 (1.00-1.32, p=0.056) |
| Time since hospital discharge, months | 0.79 (0.69-0.92, p=0.002) |
| **FVC** | **OR (multiple imputation)** |
| **Predictors**  |  |
| Chronic renal disease  |  |
| *No* | - |
| *Yes* | 3.50 (2.01-6.24, p<0.001) |
| NIMV duration, *days* | 1.23 (1.08-1.40, p=0.002) |
| IMV duration, *days* | 1.43 (1.27-1.61, p<0.001) |
| Time since hospital discharge, months  | 0.79 (0.70-0.90, p<0.001) |

Abbreviations: DLCO: lung diffusing capacity; NIMV: non-invasive mechanic ventilation; IMV: invasive mechanic ventilation; ARDS: acute respiratory distress syndrome; FEV1: forced expiratory volume in 1 second; FVC: forced vital capacity.

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**eFigure 1. Boxplot showing the time elapsed from hospital discharge to the follow-up visit.**



**eFigure 2. Distribution of hospital factors related to diffusion capacity impairment at the follow-up visit. A) Factors related to risk of DLCO < 80% selected by logistic LASSO; violin plots for continuous factors and stacked bar plots for categorical factors. B) Factors related to risk of DLCO < 60% selected by logistic LASSO; Violin plots for continuous factors and stacked bar plots for categorical factors. C) GAM models for continuous DLCO and predictors identified with linear LASSO regression. Abbreviations: DLCO: lung diffusing capacity; NIMV, non-invasive mechanic ventilation; IMV, invasive mechanic ventilation; EGFR, Estimated Glomerular Filtration Rate; LASSO, least absolute shrinkage and selection operator.**



**eFigure 3. Hospital factors related to diffusion capacity impairment (continuous DLCO) at the follow-up visit.** **Linear LASSO regression. Abbreviations: DLCO: lung diffusing capacity; IMV, invasive mechanic ventilation; EGFR, Estimated Glomerular Filtration Rate; LASSO, least absolute shrinkage and selection operator.**