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| **Table S1**: Univariate analysis of factors associated with death among patients requiring mechanical ventilation (N=119). |
|  | AllN=119 | AliveN = 43 | DeadN = 76 | OR (95%CI) | p-value |
| Age (years) | 64.0 [56.5;72.0] | 61.0 [51.0;69.5] | 66.5 [60.8;74.0] | 1.05 [1.01;1.08] | 0.006 |
| Male | 75 (63.0%) | 32 (74.4%) | 43 (56.6%) | 0.45 [0.19;1.02] | 0.05 |
| age\_categories (years):  |  |  |  |  |  |
|  [18,50[  | 17 (14.3%) | 9 (20.9%) | 8 (10.5%) | Ref. | Ref. |
|  [50,60[  | 18 (15.1%) | 9 (20.9%) | 9 (11.8%) | 1.12 [0.29;4.40] | 0.87 |
|  [60,70[  | 43 (36.1%) | 14 (32.6%) | 29 (38.2%) | 2.29 [0.72;7.52] | 0.16 |
|  [70  | 41 (34.5%) | 11 (25.6%) | 30 (39.5%) | 2.99 [0.91;10.2] | 0.07 |
| Body Mass Index (kg/m²) | 30.5 [26.0;34.6] | 31.0 [27.4;34.6] | 30.4 [25.2;34.6] | 0.97 [0.92;1.02] | 0.24 |
| Time 1st symptoms – ICU. admission (days) | 7.00 [5.00;10.0] | 8.00 [6.00;10.0] | 7.00 [4.00;10.5] | 0.99 [0.91;1.08] | 0.85 |
| **Comorbidity** |  |  |  |  |  |
| Hypertension n(%) | 79 (66.4%) | 20 (46.5%) | 59 (77.6%) | 3.93 [1.76;9.00] | 0.001 |
| Diabetes n(%) | 67 (56.3%) | 22 (51.2%) | 45 (59.2%) | 1.38 [0.65;2.96] | 0.40 |
| Other Cardiac disease n(%) | 13 (10.9%) | 0 (0.00%) | 13 (17.1%) |  | . |
| Chronic kidney disease n(%) | 21 (17.6%) | 3 (6.98%) | 18 (23.7%) | 3.94 [1.22;18.5] | 0.020 |
| Malignancy | 10 (8.40%) | 1 (2.33%) | 9 (11.8%) | 4.98 [0.87;127] | 0.076 |
| Immunosuppression | 7 (5.88%) | 0 (0.00%) | 7 (9.21%) | . [.;.] | 0.04 |
| Under dialysis | 7 (5.88%) | 0 (0.00%) | 7 (9.21%) |  | . |
| Number of comorbidities | 2.00 [1.00;3.00] | 1.00 [1.00;2.00] | 2.00 [1.00;3.00] | 1.99 [1.38;2.86] | <0.001 |
| **Previous treatment** |  |  |  |  |  |
| RAAS inhibitors n(%) | 38 (31.9%) | 8 (18.6%) | 30 (39.5%) | 2.80 [1.18;7.31] | 0.02 |
| Metformin n(%) | 30 (25.2%) | 11 (25.6%) | 19 (25.0%) | 0.97 [0.41;2.36] | 0.938 |
| **Clinical data at Day 1** |  |  |  |  |  |
| Temperature (°C) | 38.0 [37.0;38.7] | 38.1 [37.2;39.0] | 37.9 [37.0;38.5] | 0.67 [0.46;1.00] | 0.048 |
| Respiratory rate (/min.) n=36 | 34.0 [30.0;40.0] | 35.0 [30.0;36.0] | 34.0 [30.0;40.0] | 1.02 [0.96;1.08] | 0.526 |
| Diarrhea n(%) | 22 (18.8%) | 6 (14.3%) | 16 (21.3%) | 1.60 [0.59;4.89] | 0.365 |
| Confusion n(%) | 6 (5.13%) | 0 (0.00%) | 6 (8.00%) | . [.;.] | . |
| PaO2/FiO2 at D1 (n= 68/72) | 120 [90.0;162] | 148 [99.5;200] | 107 [87.0;150] | 0.99 [0.98;1.00] | 0.008 |
| SAPS II | 39.0 [30.0;53.0] | 33.5 [27.2;39.0] | 46.0 [33.5;56.5] | 1.04 [1.02;1.07] | 0.002 |
| SOFA | 7.00 [4.00;9.00] | 5.00 [3.00;7.00] | 8.00 [4.00;10.0] | 1.22 [1.08;1.38] | 0.001 |
| **Biological data at Day 1** |  |  |  |  |  |
| Hemoglobin (g/L) | 12.1 [10.6;13.4] | 12.5 [11.1;13.6] | 11.7 [10.4;13.3] | 0.95 [0.80;1.12] | 0.526 |
| Platelets (G/L) | 212 [152;292] | 241 [194;304] | 202 [141;256] | 1.00 [0.99;1.00] | 0.033 |
| Leucocytes (G/L) | 9.55 [6.50;11.8] | 9.50 [7.05;11.8] | 9.60 [6.25;11.8] | 1.01 [0.94;1.10] | 0.728 |
| Lymphocytes (G/L) | 0.90 [0.56;1.20] | 0.89 [0.66;1.16] | 0.90 [0.50;1.23] | 1.11 [0.52;2.39] | 0.784 |
| DDimers (µg/mL) n=30 | 1.44 [0.96;3.34] | 1.09 [0.73;1.65] | 1.81 [1.04;3.88] | 1.38 [1.03;1.84] | 0.03 |
| AST UI/L | 56.0 [40.0;83.0] | 63.0 [39.5;83.8] | 54.0 [40.0;76.0] | 1.00 [1.00;1.00] | 0.75 |
| ALT UI/L  | 38.0 [24.0;56.0] | 41.0 [28.5;64.8] | 34.0 [21.0;50.5] | 0.99 [0.98;1.00] | 0.24 |
| CRP (mg/L) | 162 [84.8;267] | 165 [100;261] | 161 [84.0;273] | 1.00 [1.00;1.00] | 0.951 |
| Creatinin (µmol/L) | 106 [75.2;160] | 86.0 [67.0;116] | 118 [81.0;267] | 1.01 [1.00;1.01] | 0.009 |
| CPK (UI/L) | 346 [146;917] | 278 [146;485] | 379 [146;922] | 1.00 [1.00;1.00] | 0.269 |
| LDH (UI/L) | 588 [472;699] | 592 [493;618] | 584 [448;725] | 1.00 [1.00;1.00] | 0.581 |
| Troponin (ng/mL) | 0.03 [0.01;0.06] | 0.02 [0.01;0.04] | 0.03 [0.02;0.08] |  | 0.02 |
| **% infiltrate on chest computed tomography** |  |  |  |  |
| ≤ 25%  | 10 (9.26%) | 5 (11.6%) | 5 (7.69%) | Ref. | Ref. |
| 26-50%  | 24 (22.2%) | 10 (23.3%) | 14 (21.5%) | 1.38 [0.30;6.53] | 0.67 |
| 51-75% | 38 (35.2%) | 15 (34.9%) | 23 (35.4%) | 1.52 [0.35;6.59] | 0.56 |
| >75% | 36 (33.3%) | 13 (30.2%) | 23 (35.4%) | 1.74 [0.40;7.69] | 0.45 |
| footnotes: Results are number n (percentage) of patients for categorical variables and median (q1-q3) for continuous variables. OR odd ratio and 95%CI: 95% confidence intervals were obtained using univariate logistic regression. Day 1 is the first day of admission in Intensive care Unit¥RAAS : Renin Angiotensin system BMI: Body mass index, SAPSII: simplified acute physiology score, SOFA: Sepsis-related Organ Failure Assessment, CRP: C-reactive-protein, AST : Aspartate aminotransferase, ALT: Alanine aminotransferase, LDH: lactate deshydrogenase CPK: Creatin PhosphoKinase |

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| **Table S2:** Univariate analysis for risk factors associated with mortality among patients under mechanical ventilation (N=119). |
|  | AllN=119 | Aliven=43 | Deadn=76 | ORCI95% | p-value |
| **Oxygen administration within 24 first hours** |  |  |  |  |  |
| Mechanical ventilation | 72 (60.5%)  | 28 (65.1%)  | 44 (57.9%)  | Ref.  | Ref. |
| Standard oxygen | 9 (7.56%)  | 4 (9.30%)  | 5 (6.58%)  | 0.79 [0.19;3.60]  | 0.752 |
| High flow oxygen | 34 (28.6%)  | 10 (23.3%)  | 24 (31.6%)  | 1.51 [0.64;3.79]  | 0.354 |
| Non-invasive ventilation | 4 (3.36%)  | 1 (2.33%)  | 3 (3.95%)  | 1.75 [0.19;52.0]  | 0.645 |
| **ARDS classification** |  |  |  |  |  |
|  mild | 14 (17.3%) | 9 (26.5%) | 5 (10.6%) | Ref. | Ref. |
|  moderate | 36 (44.4%) | 15 (44.1%) | 21 (44.7%) | 2.45 [0.69;9.67] | 0.170 |
|  severe | 31 (38.3%) | 10 (29.4%) | 21 (44.7%) | 3.62 [0.97;15.1] | 0.056 |
| Pulmonary embolism | 25 (13.7%)  | 15 (14.7%)  | 10 (12.3%)  | 0.82 [0.33;1.94]  | 0.65 |
| Delayed mechanical ventilation (>4days after dexamethasone administration) | 19 (15.8%)  | 2 (4.65%)  | 17 (22.1%)  | 5.41 [1.43;38.5]  | 0.010  |
| Time between ICU admission and Mechanical ventilation | 0.00 [0.00;1.00]  | 0.00 [0.00;1.00]  | 0.00 [0.00;2.00]  | 1.28 [1.00;1.63]  | 0.05 |
| Time between hospital admission and mechanical ventilation | 2.00 [1.00;4.00]  | 2.00 [1.00;3.50]  | 2.00 [0.75;4.25]  | 1.07 [0.97;1.18]  | 0.21 |
| Time between Dexamethason onset and mechanical ventilation (n = 99) | 1.00 [0.00;4.00]  | 1.00 [0.00;3.75]  | 2.00 [0.00;4.50]  | 1.15 [0.99;1.32]  | 0.06 |
| **Complications & management**  |  |  |  |  |  |
| Renal replacement therapy  | 29 (25.2%)  | 6 (14.0%)  | 23 (31.9%)  | 2.83 [1.09;8.42]  | 0.032 |
| Continuous neuromuscular blockers | 106 (89.1%)  | 32 (74.4%)  | 74 (97.4%)  | 11.8 [2.89;86.6]  | 0.32 |
| Prone position | 85 (71.4%)  | 17 (39.5%)  | 68 (89.5%)  | 12.5 [4.98;34.6]  | <0.001 |
| ECMO | 8 (6.78%)  | 2 (4.65%)  | 6 (8.00%)  | 1.70 [0.36;13.3]  | 0.528 |
| Norepinephrine | 86 (73.5%)  | 21 (48.8%)  | 65 (87.8%)  | 7.34 [3.00;19.4]  | <0.001 |
| **Infectious complications** |  |  |  |  |  |
| Ventilator associated pneumonia | 56 (47.1%)  | 15 (34.9%)  | 41 (53.9%)  | 2.16 [1.01;4.80]  | 0.048 |
| Bacteriemia | 39 (37.1%)  | 13 (31.7%)  | 26 (40.6%)  | 1.46 [0.64;3.43]  | 0.367 |
|  |  |  |  |  |  |
| Second Wave  | 97 (81.5%)  | 34 (79.1%)  | 63 (82.9%)  | 1.29 [0.48;3.32]  | 0.61 |
| Length of stay in ICU (days) | 12.0 [6.00;20.0]  | 11.0 [6.00;26.0]  | 12.5 [6.00;19.2]  | 1.00 [1.00;1.00]  | 0.750 |
| Length of mechanical ventilation (n=119) | 8.00 [5.00;17.8]  | 7.50 [3.00;19.2]  | 8.50 [5.00;17.2]  | 0.99 [0.96;1.03]  | 0.748 |
| Results are median and [IQR 25–75] for continuous variables and number n (%) for categorical variablesORCI95%: odds ratio and 95% confidence interval were obtained performing a logistic regressionFirst wave: March-May 2020, Second wave: August-October 2020, ARDS: Acute respiratory distress syndrome, ICU: Intensive care unit, ECMO: extracorporeal membrane oxygenation |