Table S7: Patient characteristics and clinical endpoints of immunocompetent (Control) patients according to the type of ventilatory support

	IMV (n=1,874)	NIV (n=212)	NIV failure (n=143)	p value
Patient characteristics				
Sex, age and BMI				
Women, n (%)	685 (36.6)	92 (43.4)	60 (42.0)	0.0793
Age (years), mean ± SD	60.8 ± 17.2	67.7 ± 16.3*	62.1 ± 15.2†	**<0.0001**
BMI (kg/m^2), mean ± SD	28.0 ± 9.3	28.3 ± 8.3	28.8 ± 10.4	0.9083
Co-morbidities, n (%)				
COPD	398 (21.2)	77 (36.3)*	47 (32.9)*	**<.0001**
Diabetes mellitus	436 (23.3)	59 (27.8)	28 (19.6)	0.1744
Hearth failure (NYHA classes III-IV)	202 (10.8)	37 (17.5)*	21 (14.7)	**0.0083**
Chronic renal failure	172 (9.2)	36 (17.0)*	14 (9.8)	**0.0016**
Chronic liver failure (Child-Pugh Class C)	81 (4.3)	6 (2.8)	4 (2.8)	0.4216
Home ventilation	33 (1.8)	11 (5.2)*	8 (5.6)*	**0.0004**
ARDS risk factors, n (%)				
Pneumonia	1035 (55.2)	129 (60.8)	107 (74.8)*†	**<0.0001**
Pulmonary contusion	75 (4.0)	4 (1.9)	7 (4.9)	0.2541
Pulmonary vasculitis	5 (0.3)	1 (0.5)	1 (0.7)	0.3094
Major trauma	102 (5.4)	3 (1.4)*	6 (4.2)	**0.0346**
Aspiration of gastric contents	322 (17.2)	18 (8.5)*	8 (5.6)*	**<0.0001**
Pancreatitis	45 (2.4)	7 (3.3)	2 (1.4)	0.5139
Non-cardiogenic shock	146 (7.8)	2 (0.9)*	6 (4.2)	**0.0004**
Drug-overdose	44 (2.3)	1 (0.5)	1 (0.7)	0.0987
Severe burns	8 (0.4)	0 (0.0)	0 (0.0)	1.0000
Inhalational injury	55 (2.9)	1 (0.5)	2 (1.4)	0.0661
Drowning	1 (0.1)	0 (0.0)	0 (0.0)	1.0000
Non-pulmonary sepsis	327 (17.4)	21 (9.9)*	13 (9.1)*	**0.0011**
Blood transfusions	74 (3.9)	4 (1.9)	4 (2.8)	0.2698
Other risk factors	58 (3.1)	2 (0.9)	1 (0.7)	0.0580
None	146 (7.8)	39 (18.4)*	9 (6.3)†	**<0.0001**
Illness severity at ARDS onset				
Non-pulmonary SOFA score[a], mean ± SD	6.8 ± 4.0	2.8 ± 2.9*	4.5 ± 4.0*†	**<0.0001**
PaO_2/FiO_2 ratio (mm Hg), mean ± SD	162.1 ± 67.6	166.8 ± 65.1	142.8 ± 59.9*†	**0.0018**
Mild ARDS[b], n (%)	570 (30.4)	70 (33.0)	26 (18.2)*†	**0.0050**
Moderate ARDS[b], n (%)	889 (47.4)	102 (48.1)	76 (53.1)	0.4189
Severe ARDS[b], n (%)	415 (22.2)	40 (18.9)	41 (28.7)	0.0897
Clinical endpoints				
Duration of mechanical ventilation (days), median (Q_1-Q_3)	8.0 (4.0-16.0)	-	9.0 (4.0-13.0)	0.9345
Progression/Regression of ARDS[c], n (%)				
No change	697 (41.5)	60 (34.9)	67 (52.8)*†	**0.0078**
Progression	187 (11.1)	15 (8.7)	12 (9.4)	0.5465
Regression	378 (22.5)	24 (14.0)*	20 (15.7)	**0.0094**
Resolution	417 (24.8)	73 (42.4)*	28 (22.0)†	**<.0001**
Limitation of life sustaining measures, n (%)				
Decision to withhold life sustaining measures	338 (18.0)	50 (23.6)	27 (18.9)	0.1439
Decision to withdraw life sustaining measures	303 (16.2)	32 (15.1)	21 (14.7)	0.8386
Decision to withhold or withdraw life sustaining measures	417 (22.3)	57 (26.9)	33 (23.1)	0.3107
Before IMV or NIV start	3 (0.7)	2 (3.5)	0 (0.0)	0.1344
ICU mortality[d], n (%)	609 (32.5)	40 (18.9)*	49 (34.4)†	**0.0002**
Hospital mortality[e], n (%)				
All patients	693 (37.1)	60 (28.3)*	51 (35.9)	**0.0416**
Patients with limitations of life sustaining measures[d]	354 (84.9)	38 (66.7)*	27 (81.8)	**0.0030**

Abbreviations: ARDS: acute respiratory distress syndrome; COPD: chronic obstructive pulmonary disease; IMV: patients invasively ventilated from Day 1, independently of the type of support received after the eventual extubation; NIV: patients treated exclusively with non-invasive ventilation, from Day 1 to study exit, independently of outcome; NIV failure: patients initially treated with non-invasive ventilation and subsequently intubated during the study period; NYHA: New York Heart Association; Q_1: first quartile; Q_3: third quartile; SD: standard deviation; SOFA: sequential organ failure assessment.

a. Non pulmonary SOFA score adjusted for missing values

b. Severity of ARDS was evaluated according to the Berlin definition

c. Change in ARDS severity (according Berlin definition) was not evaluable for 251 immunocompetent patients (195 IMV, 40 NIV and 16 NIV failure).

d. Mortality is defined as mortality at ICU discharge or at ninetieth day in ICU, after onset of acute hypoxemic respiratory failure, which ever event occurred first

e. Mortality is defined as mortality at hospital discharge or at ninetieth day in hospital, after onset of acute hypoxemic respiratory failure, which ever event occurred first.

Note: Bold p values shows a statistically significant difference among the three groups

* Statistically significant different from IMV group; † Statistically significant different from NIV group