

Additional file 1. Characteristics and outcomes of 208 patients during weaning

| | All patients (n=208) | Weaning outcome | | | p |
|---|-------------------------|-----------------|---------------------|---------------------|--------|
| | | Short (n=51) | Difficult (n=95) | Prolonged (n=62) | |
| Age, year | 67 (56-75) | 65 (52-72) | 64 (56-75) | 70 (62-76) | 0.075 |
| Female sex | 76 (36.5) | 17 (33.3) | 37 (38.9) | 22 (35.5) | 0.781 |
| Body mass index, kg/m ² | 27 (22-32) | 27 (23-30) | 28 (22-33) | 26 (23-32) | 0.883 |
| SAPS-II at admission | 50 (39-63) | 51 (34-59) | 50 (40-65) | 48 (40-62) | 0.528 |
| MacCabe score | | | | | 0.524 |
| 0 | 120 (57.7) | 32 (62.7) | 58 (61.1) | 30 (48.4) | |
| 1 | 57 (27.4) | 12 (23.5) | 24 (25.3) | 21 (33.9) | |
| 2 | 31 (14.9) | 7 (13.7) | 13 (13.7) | 11 (17.7) | |
| <i>Comorbidities</i> | | | | | |
| COPD | 52 (25.0) | 9 (17.6) | 24 (25.3) | 19 (30.6) | 0.283 |
| Restrictive lung disease | 23 (11.1) | 4 (7.8) | 11 (11.6) | 8 (12.9) | 0.678 |
| Obstructive sleep apnoea syndrome | 26 (12.5) | 10 (19.6) | 11 (11.6) | 5 (8.1) | 0.170 |
| Asthma | 7 (3.4) | 4 (7.8) | 1 (1.1) | 2 (3.2) | 0.095 |
| Current smoker | 94 (45.2) | 22 (43.1) | 44 (46.3) | 28 (45.2) | 0.935 |
| Quantification of cigarette smoking, pack-year | 34 (20-50) | 45 (31-66) | 31 (20-45) | 31 (20-52) | 0.268 |
| Central nervous system disease | 19 (9.1) | 3 (5.9) | 9 (9.5) | 7 (11.3) | 0.603 |
| Peripheral neuropathy | 14 (6.7) | 4 (5.9) | 8 (8.4) | 3 (4.8) | 0.656 |
| Mental illness | 11 (5.3) | 4 (7.8) | 5 (5.3) | 2 (3.2) | 0.551 |
| Heart failure with preserved ejection fraction | 33 (15.9) | 14 (27.5) | 13 (13.7) | 6 (9.7) | 0.027 |
| Heart failure with reduced ejection fraction | 34 (16.3) | 4 (7.8) | 13 (13.7) | 17 (27.4) | 0.013 |
| Atrial fibrillation | 42 (20.2) | 7 (13.7) | 21 (22.1) | 14 (22.6) | 0.415 |
| Hypertension | 111 (53.4) | 29 (56.9) | 51 (53.7) | 31 (50.0) | 0.765 |
| Valvular heart disease | 24 (11.5) | 9 (17.6) | 10 (10.5) | 5 (8.1) | 0.260 |
| Coronary artery disease | 41 (19.7) | 12 (23.5) | 14 (14.7) | 15 (24.2) | 0.254 |
| Pulmonary hypertension | 12 (5.8) | 3 (5.9) | 7 (7.4) | 2 (3.2) | 0.553 |
| <i>Reason for intubation</i> | | | | | |
| Coma | 28 (13.5) | 9 (17.6) | 11 (11.6) | 8 (12.9) | 0.585 |
| Septic shock | 31 (14.9) | 8 (15.7) | 11 (11.6) | 12 (19.4) | 0.402 |
| COPD exacerbation | 19 (9.1) | 6 (11.8) | 9 (9.5) | 4 (6.5) | 0.703 |
| Pneumonia | 59 (28.4) | 11 (21.6) | 33 (34.7) | 15 (24.2) | 0.166 |
| Cardiogenic pulmonary edema | 20 (9.6) | 8 (15.7) | 8 (8.4) | 4 (6.5) | 0.220 |
| Cardiac arrest | 20 (9.6) | 3 (5.9) | 9 (9.5) | 8 (12.9) | 0.451 |
| Surgery | 15 (7.2) | 2 (3.9) | 8 (8.4) | 5 (8.1) | 0.577 |
| Others | 15 (7.2) | 4 (7.8) | 5 (5.3) | 6 (9.7) | 0.568 |
| <i>Events between ICU admission and inclusion</i> | | | | | |
| Acute respiratory distress syndrome | 87 (41.8) | 18 (35.3) | 38 (40.0) | 31 (50.0) | 0.256 |
| Septic shock | 107 (51.4) | 21 (41.2) | 46 (48.4) | 40 (64.5) | 0.034 |
| Ventilator-associated pneumonia | 53 (25.5) | 8 (15.7) | 19 (20.0) | 26 (41.9) | 0.002 |
| Neuromuscular blockade | 100 (48.5) | 19 (37.3) | 44 (47.3) | 37 (59.7) | 0.057 |
| Atrial fibrillation | 71 (34.1) | 14 (27.5) | 30 (31.6) | 27 (43.5) | 0.155 |
| Corticosteroids | 67 (32.3) | 14 (27.5) | 32 (33.7) | 21 (33.9) | 0.704 |
| Delay between admission and inclusion, days | 7 (4-14) | 6 (3-9) | 6 (3-9) | 14 (7-19) | <0.001 |
| Prophylactic NIV after extubation | 126 (60.6) | 34 (66.7) | 62 (65.3) | 30 (48.4) | 0.063 |
| <i>Outcomes</i> | | | | | |
| Successful weaning ^a | 176 (84.6) | 51 (100.0) | 90 (94.7) | 35 (56.5) | <0.001 |
| Tracheotomy | 8 (3.8) | 0 | 0 | 8 (12.9) | <0.001 |
| Ventilator-free days at day-28, days ^b | 16 (0-22) | 22 (19-25) | 20 (14-22) | 0 (0-0) | <0.001 |
| Length of stay in ICU, days | 14 (9-24) | 10 (6-14) | 13 (10-17) | 33 (29-45) | <0.001 |
| Death in ICU | 44 (21.2) | 0 (0.0) | 9 (9.5) | 35 (56.5) | <0.001 |

SAPS Simplified Acute Physiologic score, COPD chronic obstructive pulmonary disease, ICU intensive care unit, NIV non invasive ventilation

Data are expressed as number (percentage) for categorical variables or median (1st quartile- 3rd quartile) for continuous variables.

Weaning outcome was defined as follows: short weaning (successful weaning or death within one day after the first SBT), difficult weaning (successful weaning or death after more than one day but in less than seven days after the first SBT), and prolonged weaning (successful weaning or death after seven days following the first SBT).

^a Successful weaning was defined as patient alive and extubated within the next 7 days after extubation; ^b If patient died before day-28, VFD at day-28=0