**Table S1.** Comparison of ventilatory parameters between groups at 0, 1, 3, 5 and 7 days after enrollment.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Day 0 | Day 1 | Day 3 | Day 5 | Day 7 | Between subjects p for trend |
| Tidal volume (ml/kg/PBW) *a*  APRV  LTV | 6.6 ± 0.8  6.5 ± 0.8 | \*  7.4 ± 1.0  6.7 ± 0.5 | \*  7.4 ± 1.1  6.6 ± 0.6 | \*  8.1 ± 1.3  7.1 ± 1.1 | \*  8.6 ± 1.0  7.2 ± 0.9 | <0.001 |
| Minute ventilation (L/min)  APRV  LTV | 9.4 ± 1.6  9.3 ± 1.5 | 8.1 ± 1.1  8.4 ± 1.3 | \*  8.1 ± 2.0  10.3 ± 1.9 | \*  7.9 ± 2.4  9.7 ± 2.3 | 9.4 ± 2.8  10.1 ± 2.0 | 0.001 |
| Spontaneous minute ventilation (%)  APRV  LTV | 0  0 | 0  0 | 0  0 | \*  0 (0-25)  0 (0-0) | \*  20 (0-30)  0 (0-0) | 0.10 |
| Mandatory respiratory rate (bpm)  APRV  LTV | 19 (17-22)  19 (17-23) | \*  15 (15-17)  19 (16-22) | \*  13 (12-14)  20 (18-25) | \*  11 (10-12)  18 (16-21) | \*  13 (12-14)  19 (17-21) | <0.001 |
| Mean airway pressure (cmH2O)  APRV  LTV | 20 ± 2.6  19 ± 2.8 | \*  22.9 ± 3.0  19.2 ± 3.3 | \*  22.9 ± 3.0  17.4 ± 3.2 | \*  20 ± 3.7  17 ± 4.3 | \*  19 ± 4.3  16 ± 3.7 | <0.001 |
| Total PEEP (cmH2O) (IQR) *b*  APRV  LTV | 14 (14-16)  14 (12-16) | 12 (11-13)  14 (10-15) | 16.1 (12.8-17.9)  12.8 (9.8-16.8) | \*  14 (12-17)  12 (10-24) | 12 (9-13)  9.5 (7-13) | 0.03 |
| Plateau pressure (cmH2O) *c*  APRV  LTV | 28 (26-29)  27 (26-29) | 26 (24-28)  25 (24-26) | 26 (24-28)  24 (20-28) | 24 (21-27)  22 (20-25) | 22 (20-26)  22 (18-24) | 0.02 |
| Driving pressure (cmH2O) d  APRV  LTV | 13.7 ± 3.6  13.8 ± 4.7 | \*  13.8 ± 2.7  11.7 ± 2.4 | \*  10.2 ± 2.0  11.3 ± 2.0 | 9.5 ± 2.4  10 ± 2.7 | 10.6 ± 1.9  11 ± 2.3 | 0.94 |
| Static compliance (ml/cmH2O)  APRV  LTV | 30 ± 9.7  32 ± 9.2 | 35 ± 12  38 ± 11 | \*  47 ± 14  38 ± 10 | \*  55 ± 14  48 ± 16 | \*  52 ± 12  43 ± 13 | 0.03 |
| FiO2(%) (IQR)  APRV  LTV | 65 (50-80)  50 (45-79) | \*  50 (40-60)  55 (50-70) | \*  40 (40-50)  50 (40-56) | \*  42 (40-50)  50 (45-60) | \*  50 (40-60)  55 (41-70) | 0.01 |
| PaO2 (mmHg) (IQR)  APRV  LTV | 87 (70-99)  83 (73-91) | 87 (80-98)  83 (74-92) | \*  80 (73-90)  74 (70-83) | \*  87 (80-90)  80 (69-87) | \*  85 (77-96)  76 (66-81) | <0.001 |
| PaCO2 (mmHg)  APRV  LTV | 51 ± 12  50 ± 12 | \*  45 ± 16  48 ± 11 | \*  49 ± 7  47 ± 13 | 51 ± 10  47 ± 12 | 46 ± 14  48 ± 11 | 0.91 |
| PaO2/FiO2 ratio (SD)  APRV  LTV | 140 ± 42  149 ± 50 | \*  185 ± 53  152 ± 43 | \*  192 ± 55  162 ± 40 | \*  195 ± 40  153 ± 50 | \*  181 ± 43  136 ± 44 | <0.001 |

\*Two-tailed p-value <0.05 between groups for each day.

*a* For APRV, recorded tidal volumes were the release volumes

*b* Corresponds to total (extrinsic + intrinsic) PEEP measured at an expiratory pause maneuver in both groups.

*c* Measured at an inspiratory pause maneuver in LTV. Corresponds to P-High (at zero flow, w/o patient effort) in APRV.

d Calculated as plateau pressure – PEEP.