Supplementary material

Supplementary Table 1. Demographic, respiratory, and clinical parameters between Group A (16–24 hours prone positioning) and Group B (25–36 hours prone positioning).

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| A (16–24 h) *vs.* B (25–36 h) | Group A (n = 174) | Group B (n = 176) | *p* value |
| Temperature (centigrade) | 36.5 (36.1–36.9) | 36.5 (36.1–36.8) | 0.9239 |
| HR | 89.1 (74.9–103.9) | 82.6 (70.3–96.0) | 0.0183 |
| Systolic BP (mmHg) | 120.4 (110.1–129.2) | 121.7 (116.1–127.6) | 0.2182 |
| Diastolic BP (mmHg) | 62.3 (57.0–68.0) | 62.5 (57.8–69.2) | 0.6760 |
| Sodium (mmol/L) | 138.0 (134.4–141.2) | 138.5 (135.5–142.0) | 0.0981 |
| Potassium (mmol/L) | 4.2 (3.8–4.7) | 4.2 (3.7–4.6) | 0.8778 |
| Chloride (mmol/L) | 103.9 (99.7–107.9) | 104.6 (101.4–107.2) | 0.4699 |
| PCO2 (mmHg) | 52.5 (45.7–63.0) | 55.9 (48.8–65.4) | 0.0334 |
| Sodium Bicarbonate(mmol/L) | 25.0 (21.2–27.4) | 25.4 (23.0–28.8) | 0.0123 |
| PH | 7.3 (7.2–7.5) | 7.3 (7.3–7.5) | 0.6339 |
| SpO2 (%) | 95.2 (92.6–97.6) | 94 (92.1–95.9) | 0.0004 |
| RR | 15 (13.8–16.9) | 15 (13.9–16.5) | 0.6213 |
| TVe (mL) | 458.8 (401.0–505.2) | 460.3 (425.8–504.6) | 0.2705 |
| PEEP (cmH2O) | 9.0 (8.0–10.0) | 9.3 (8.4–10.4) | 0.0272 |
| Pmean | 15.4 (13.8–17.5) | 16.5 (14.06–18.0) | 0.0099 |
| MVe (L) | 6.7 (5.7–7.5) | 7.0 (6.3–7.7) | 0.0268 |
| Ppeak (cmH2O) | 25.8 (23.1–28.4) | 25.9 (24.3–29.0) | 0.0832 |
| APACHE II score mortality | 46 (29–67) | 46 (32–64) | 0.6252 |

HR: Heart rate; BP: Blood pressure; BMI: Body mass index; PCO2: partialpressure of carbon dioxide in arterial blood; SpO2: Saturation of oxygen; PH: potential of hydrogen; RR: Respiratory rate; TVe: Tidal volume (expirium); PEEP: Positive end expiratory pressure; Pmean: Mean airway pressure; MVe: Expirium minute volume; Ppeak: Peak airway pressure; APACHE: Acute physiology and chronic health evaluation.

Supplementary Table 2. Respiratory parameters, oxygenation indices, and mechanical ventilation metrics during pre-prone, prone and post-prone periods in Group A.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Group A (n = 149) | Pre-prone | Prone | Post-prone | *p* value |
| HR | 95 (90.5 to 99.5) | 86.2 (82.6 to 89.9) | 85.2 (81.4 to 89) | <0.0001 |
| SpO2 (%) | 93.1 (92.1 to 94.1) | 95.2 (94.5 to 96) | 95.2 (94.5 to 96) | <0.0001 |
| Systolic BP (mmHg) | 119.2 (115.2 to 123.1) | 122.7 (119.3 to 126) | 120.6 (117.5 to 123.8) | 0.3005 |
| Diastolic BP (mmHg) | 63.6 (61.1 to 66.1) | 64 (61.9 to 66.1) | 62.7 (60.6 to 64.8) | 0.5131 |
| MAP (mmHg) | 81.6 (78.9 to 84.3) | 83.1 (80.8 to 85.3) | 82.1 (79.9 to 84.3) | 0.5979 |
| PH | 7.27 (7.25 to 7.29) | 7.32 (7.30 to 7.34) | 7.34 (7.32 to 7.36) | <0.0001 |
| PEEP (cmH2O) | 9.3 (8.8 to 9.8) | 8.9 (8.6 to 9.3) | 8.7 (8.4 to 9.1) | 0.0314 |
| TVe (mL) | 453.7 (432.1 to 475.3) | 451.6 (432.6 to 470.6) | 451.0 (429.8 to 472.2) | 0.9482 |
| Pmean | 16.0 (15.3 to 16.7) | 15.6 (15.1 to 16.2) | 15.5 (15.0 to 16.0) | 0.1837 |
| MVe (L) | 6.6 (6.2 to 6.9) | 6.7 (6.4 to 7.1) | 6.6 (6.3 to 6.9) | 0.5037 |
| Ppeak (cmH2O) | 26.0 (25.1 to 26.8) | 25.5 (24.7 to 26.3) | 25.2 (24.4 to 26.1) | 0.0570 |

HR: Heart rate; SpO2: Saturation of oxygen; BP: Blood pressure; MAP: Mean arterial blood pressure; PH: potential of hydrogen; PEEP: Positive end expiratory pressure; TVe: Tidal volume (expirium); Pmean: Mean airway pressure; MVe: Expirium minute volume; Ppeak: Peak airway pressure.

Supplementary Table 3. Respiratory parameters, oxygenation indices, and mechanical ventilation metrics during pre-prone, prone and post-prone periods in Group B.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Group B (n = 168) | Pre-prone | Prone | Post-prone | *p* value |
| HR | 92.2 (88.3 to 96.1) | 82.9 (79.4 to 86.4) | 82.5 (79.1 to 85.9) | <0.0001 |
| SpO2 (%) | 91.7 (90.9 to 92.6) | 94.4 (93.9 to 95) | 94.4 (93.8 to 95.1) | <0.0001 |
| Systolic BP (mmHg) | 121.5 (117.7 to 125.2) | 122.3 (119.0 to 125.7) | 124.6 (120.5 to 128.6) | 0.4542 |
| Diastolic BP (mmHg) | 62.8 (60.9 to 64.8) | 64.1 (62.1 to 66.1) | 64.1 (61.1 to 67.2) | 0.6432 |
| MAP (mmHg) | 81.8 (79.4 to 84.2) | 83.5 (81.2 to 85.9) | 83.1 (80.6 to 85.6) | 0.5238 |
| PH | 7.28 (7.26 to 7.30) | 7.33 (7.31 to 7.35) | 7.33 (7.31 to 7.34) | <0.0001 |
| PEEP (cmH2O) | 9.7 (9.4 to 10.1) | 9.6 (9.2 to 9.9) | 9.6 (9.3 to 10.0) | 0.6819 |
| TVe (mL) | 460.8 (443.5 to 478.2) | 467.1 (452.8 to 481.5) | 450.2 (435.0 to 465.5) | 0.0362 |
| Pmean | 16.6 (16.2 to 17.1) | 16.5 (16.0 to 16.9) | 16.2 (15.8 to 16.6) | 0.1329 |
| MVe (L) | 6.8 (6.6 to 7.0) | 7.1 (6.9 to 7.3) | 6.8 (6.6 to 7.0) | 0.0103 |
| Ppeak (cmH2O) | 27.1 (26.4 to 27.7) | 26.3 (25.8 to 26.9) | 26.2 (25.6 to 26.8) | 0.0046 |

HR: Heart rate; SpO2: Saturation of oxygen; BP: Blood pressure; MAP: Mean arterial blood pressure; PH: potential of hydrogen; PEEP: Positive end expiratory pressure; TVe: Tidal volume (expirium); Pmean: Mean airway pressure; MVe: Expirium minute volume; Ppeak: Peak airway pressure.

Supplementary Table 4. Respiratory parameters, oxygenation indices, and mechanical ventilation metrics between Groups A and B during pre-prone, prone and post-prone periods.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| A *vs.* B (n = 276) | Pre-prone | *p* value | Prone | *p* value | Post-prone | *p* value |
| HR | 93.0 (75.5–106.0) *vs.* 90.0 (79.0–103.0) | 0.3892 | 84.5 (71.7–101.3) *vs.* 77.0 (65.7–95.0) | 0.0723 | 84.0 (69.0–97.0) *vs.* 79.0 (66.0–96.0) | 0.2133 |
| SpO2 (%) | 94.5 (90.1–97.1) *vs.* 92.5 (89.0–95.5) | 0.0122 | 96.0 (93.0–98.0) *vs.* 95.0 (92.0–97.0) | 0.0205 | 96.0 (93.5–98.0) *vs.* 95.0 (92.9–97.1) | 0.0399 |
| Systolic BP (mmHg) | 120.0 (104.0–133.0) *vs.* 117.5 (105.0–135.0) | 0.5977 | 124.5 (108.8–133.0) *vs.* 121.5 (106.8–137.0) | 0.8494 | 119.0 (108.0–135.0) *vs.* 123.5 (109.0–135.0) | 0.2788 |
| Diastolic BP (mmHg) | 62.0 (55.0–71.0) *vs.* 62.0 (55.0–70.0) | 0.8428 | 65.0 (56.0–72.0) *vs.* 63.0 (56.0–70.0) | 0.5343 | 60.0 (55.0–69.0) *vs.* 63.0 (56.0–69.2) | 0.4806 |
| MAP (mmHg) | 80.0 (72.0–90.0) *vs.* 80.0 (72.0–88.0) | 0.9915 | 84.0 (74.0–90.2) *vs.* 81.5 (72.7–91.0) | 0.7810 | 80.0 (73.0–91.0) *vs.* 83.0 (75.0–90.0) | 0.4472 |
| PH | 7.3 (7.2–7.3) *vs.* 7.3 (7.2–7.4) | 0.7974 | 7.3 (7.2–7.4) *vs.* 7.3 (7.3–7.4) | 0.1137 | 7.4 (7.3–7.4) *vs.* 7.3 (7.3–7.4) | 0.4117 |
| PEEP (cmH2O) | 9.4 (7.9–10.1) *vs.* 9.8 (8.1–10.9) | 0.0734 | 9.0 (7.9–10.1) *vs.* 9.7 (8.0–10.3) | 0.0352 | 8.9 (7.4–10.1) *vs.* 9.8 (8.1–10.3) | 0.0024 |
| TVe (mL) | 457.0 (395.0–507.0) *vs.* 453.0 (408.0–499.0) | 0.9740 | 465.5 (405.3–508.0) *vs.* 466.5 (419.0–520.0) | 0.2895 | 464.5 (409.0–513.3) *vs.* 459.5 (410.5–506.0) | 0.4400 |
| Pmean | 15.9 (13.5–18.0) *vs.* 16.4 (14.3–18.5) | 0.1302 | 15.7 (13.9–17.8) *vs.* 16.5 (14.6–18.2) | 0.0360 | 15.5 (13.6–17.7) *vs.* 16.1 (14.7–17.9) | 0.0774 |
| MVe (L) | 6.4 (5.7–7.6) *vs.* 6.8 (5.9–7.4) | 0.3621 | 6.8 (5.9–7.7) *vs.* 7.0 (6.3–7.9) | 0.0376 | 6.7 (5.9–7.7) *vs.* 6.8 (6.0–7.7) | 0.4540 |
| Ppeak (cmH2O) | 25.9 (23.1–28.7) *vs.* 26.7 (24.0–29.9) | 0.1268 | 26.0 (23.0–28.2) *vs.* 25.9 (24.0–28.4) | 0.2218 | 25.5 (22.6–27.9) *vs.* 25.9 (23.3–28.7) | 0.0874 |

HR: Heart rate; SpO2: Saturation of oxygen BP: Blood pressure; MAP: Mean arterial blood pressure; PH: potential of hydrogen; PEEP: Positive end expiratory pressure; TVe: Tidal volume (expirium); Pmean: Mean airway pressure; MVe: Expirium minute volume; Ppeak: Peak airway pressure.

Supplementary Table 5. Survivors and non-survivors within Groups A (16–24 hours) and B (25–36 hours).

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| --- | --- | --- | --- | --- |
|  | Group A (16–24 h)Survivor *vs.* Nonsurvivor | *p* value | Group B (24–36 h)Survivor *vs.* Nonsurvivor | *p* value  |
| HR | 88.3 (74.8 to 105.5) *vs.* 90.2 (74.3 to 103.8) | 0.9800 | 78.2 (68.6 to 88.6) *vs.* 87.2 (72.6 to 102.0) | 0.0164 |
| Temperature (centigrade) | 36.5 (36.2 to 36.9) *vs.* 36.5 (36.1 to 36.8) | 0.3590 | 36.4 (36.1 to 36.8) *vs.* 36.5 (36.2 to 36.8) | 0.3399 |
| Systolic BP (mmHg) | 125.1 (112.0 to 130.7) *vs.* 118.3 (109.7 to 127.9) | 0.1440 | 123.3 (116.0 to 132.6) *vs.* 120.5 (116.2 to 125.5) | 0.1036 |
| Diastolic BP (mmHg) | 64.3 (59.2 to 68.8) *vs.* 61.4 (54.3 to 67.9) | 0.0595 | 64.2 (60.2 to 71.2) *vs.* 60.0 (56.4 to 68.9) | 0.0014 |
| MAP (mmHg) | 82.9 (78.5 to 89.9) *vs.* 80.0 (74.0 to 86.8) | 0.0547 | 83.8 (79.3 to 89.9) *vs.* 80.4 (75.4 to 86.7) | 0.0078 |
| Norepinephrine (µg/kg/min) | 16.5 (7.7 to 20.0) *vs.* 22.8 (20.0 to 58.0) | 0.0074 | 11.1 (2.5 to 24.6) *vs.* 20.0 (11.6 to 58.5) | 0.0028 |
| Sodium (mmol/L) | 138.8 (135.5 to 141.8) *vs.* 137.3 (132.7 to 140.9) | 0.1415 | 138.2 (136.0 to 141.4) *vs.* 139.1 (135.4 to 142.5) | 0.5042 |
| Potassium (mmol/L) | 3.9 (3.6 to 4.4) *vs.* 4.3 (3.8 to 4.9) | 0.0080 | 4.1 (3.8 to 4.4) *vs.* 4.2 (3.7 to 4.7) | 0.1701 |
| Chloride (mmol/L) | 104.4 (99.8 to 107.3) *vs.* 103.4 (99.2 to 108.2) | 0.6890 | 104.9 (101.7 to 107.1) *vs.* 104 (101.3 to 108.2) | 0.6232 |
| SpO2 (%) | 95.6 (93.4 to 97.7) *vs.* 95 (92.2 to 97.2) | 0.1397 | 94.6 (92.9 to 96.4) *vs.* 93.3 (90.9 to 95.3) | 0.0010 |
| PCO2 (mmHg) | 51.6 (45.3 to 61.4) *vs.* 53.7 (46.8 to 65.3) | 0.4332 | 53.9 (48.6 to 59.9) *vs.* 59.4 (48.8 to 75.0) | 0.0092 |
| BE | 0.0 (0.0 to 0.0) *vs.* 0.0 (0.0 to 0.0) | 0.1495 | 0.0 (0.0 to 0.0) *vs.* 0.0 (0.0 to 0.0) | 0.3538 |
| CHCO3 (mmol/L) | 26.1 (22.0 to 27.4) *vs.* 23.6 (20.5 to 27.1) | 0.0831 | 26.4 (23.6 to 28.8) *vs.* 25.1 (22.4 to 28.8) | 0.3404 |
| PH | 7.3 (7.3 to 7.4) *vs.* 7.3 (7.2 to 7.4) | 0.0306 | 7.3 (7.2 to 7.4) *vs.* 7.3 (7.2 to 7.4) | 0.0012 |
| PEEP (cmH2O) | 8.9 (7.6 to 10.0) *vs.* 9.1 (8.2 to 10.0) | 0.3135 | 9.4 (8.3 to 10.4) *vs.* 9.3 (8.3 to 10.3) | 0.7364 |
| TVe (mL) | 462.5 (390.1 to 518.5) *vs.* 447.9 (411.1 to 502.0) | 0.8989 | 473.8 (434.4 to 505.3) *vs.* 455.3 (416.1 to 504.8) | 0.1401 |
| Pmean | 15.2 (13.1 to 17.2) *vs.* 15.5 (14.3 to 17.9) | 0.0435 | 15.7 (14.1 to 17.2) *vs.* 16.9 (15.3 to 18.3) | 0.0026 |
| MVe (L) | 6.5 (5.6 to 7.2) *vs.* 6.7 (5.9 to 7.6) | 0.0690 | 6.8 (6.1 to 7.6) *vs.* 7.1 (6.3 to 7.8) | 0.0898 |
| Ppeak (cmH2O) | 24.1 (21.1 to 27.7) *vs.* 26.8 (24.0 to 29.1) | 0.0006 | 25.3 (23.8 to 27.6) *vs.* 27.1 (24.7 to 29.8) | 0.0024 |
| I/E | 0.7 (0.5 to 0.9) *vs.* 0.9 (0.5 to 1.0) | 0.0522 | 0.9 (0.6 to 1.0) *vs.* 0.9 (0.7 to 1.0) | 0.6600 |
| APACHE II mortality | 46.0 (26.0 to 67.0) *vs.* 50.0 (31.2 to 67.7) | 0.4634 | 39.0 (26.0 to 53.0) *vs.* 53.0 (36.0 to 67.0) | <0.0001 |
| PP duration of stay (h) | 18.0 (16.0 to 22.0) *vs.* 16.0 (16.0 to 20.5) | 0.2021 | 33.0 (27.0 to 36.0) *vs.* 34.0 (28.0 to 36.0) | 0.2528 |

HR: Heart rate; BP: Blood pressure; MAP: Mean arterial blood pressure; SpO2: Saturation of oxygen; PCO2: partialpressure of carbon dioxide in arterial blood; BE: Base excess; CHCO3: Sodium bicarbonate; PH: potential of hydrogen; PEEP: Positive end expiratory pressure; TVe: Tidal volume (expirium); Pmean: Mean airway pressure; MVe: Expirium minute volume; Ppeak: Peak airway pressure; I/E: Inspiratory to expiratory ratio; APACHE: Acute physiology and chronic health evaluation; PP: Prone positioning.