**Appendix 3 (as supplied by the authors):** Characteristics of the randomized controlled trials included in the systematic review (part 1 of 4)

| | Guérin et al (1) 2013 | Taccone et al (2) 2009 | Fernandez et al (3) 2008 | Chan et al (4) 2007 |
|---|---|---|---|---|
| ***Patient Characteristics*** | | | | |
| Patients | 474 | 344 | 42 | 22 |
| Enrolment period | 2008-2011 | 2004-2008 | 2003-2004 | 2002-2003 |
| Enrolment criteria | ARDS[a] with $PaO_2/FiO_2$ <150, PEEP ≥5 $cmH_2O$, $FiO_2$ ≥0.6 after 12-24 hour stabilization period | ARDS [a] with PEEP ≥5 $cmH_2O$ | ARDS [a] | ARDS[a] secondary to community-acquired pneumonia |
| Mean enrolment $PaO_2/FiO_2$ (mm Hg) | 100 | 113 | 118 | 109 |
| Mean enrolment PEEP ($cmH_2O$) | 10 | 10 | 11 | 13 |
| Mean enrolment $FiO_2$ ($cmH_2O$) | 0.79 | 0.72 | 0.85 | 0.88 |
| Time after meeting enrolment criteria | < 36 hours | <72 hours | <48 hours | <72 hours |
| Last follow-up investigated | 90 days | 6 months | Hospital discharge | Hospital discharge |
| ***Details of Prone Positioning*** | | | | |
| Planned duration | ≥16 hours/day until weaning criteria | 20 hours/day for 28 days | 20 hours/day until weaning criteria | 24 hours/day continuous for at least 72 hours |
| Actual duration (average) | 17 hours for 4 days | 18 hours for 8.3 days | 18 hours [d] | 24 hours for 4.4 days |
| Prone discontinuation criteria | $PaO_2/FiO_2$ ≥150 , PEEP ≤5 $cmH_2O$, $FiO_2$ ≤ 0.6 | $FiO_2$ ≤40% and PEEP ≤10 $cmH_2O$ | $PaO_2/FiO_2$ >250 & PEEP ≤8 $cmH_2O$ for 12 hours | $SpO_2$>90%, $FiO_2$<60% for >24 hours (after 72 hours) |
| Crossover criteria (supine to prone) | $PaO_2/FiO_2$ <55 despite PEEP ≥24 $cmH_2O$, $FiO_2$=1.0, iNO, recruitment manouvres and almitrine bismesylate | $PaO_2$ ≤55 mmHg on $FiO_2$ =1.0 and PEEP ≥15 $cmH_2O$ | $FiO_2$ =1.0 and PEEP =24 $cmH_2O$ for 6 hours | No |
| ***Details of Mechanical Ventilation*** | | | | |
| Protective mechanical ventilation | Yes | Yes (*i.e.*, Vt ≤ 8ml/kg of PBW [c]) | Yes (*i.e.*, Vt 6-8 ml/kg of PBW [c]) | Yes (*i.e.*, Vt 6-8 ml/kg of IBW [e]) |
| Weaning protocol | Yes | No | Yes | No |
| Pre-defined sedation targets | Yes | No | Yes | No |

Appendix to: Sud S, Friedrich JO, Adhikari NKJ, et al. Effect of prone positioning during mechanical ventilation on mortality among patients with acute respiratory distress syndrome: a systematic review and meta-analysis. *CMAJ* 2014. DOI:10.1503/cmaj.140081. 

**Appendix 3 (as supplied by the authors):** Characteristics of the randomized controlled trials included in the systematic review (part 2 of 4)

| | Mancebo et al (5) 2006 | Curley et al (6) 2005 | Voggenreiter et al (7) 2005 | Guérin et al (8) 2004 |
|---|---|---|---|---|
| ***Patient Characteristics*** | | | | |
| Patients | 142 | 102 children (age 2 weeks to 18 y) | 40 | 802 |
| Enrolment period | 1998-2002 | 2001-2004 | 1999-2001 | 1998-2002 |
| Enrolment criteria | ARDS [a] with four-quadrant infiltrates on CXR | ALI/ARDS [a] | ALI (for at least 24h)/ARDS (for at least 8h) [a] with PEEP ≥5 $cmH_2O$ | Hypoxemic acute respiratory failure (413 ALI/ARDS [a] pts) |
| Mean enrolment $PaO_2/FIO_2$ (mm Hg) | 105 | 100 | 221 | 152 |
| Mean enrolment PEEP ($cmH_2O$) | 7 | 9 | 11.5 | 8 |
| Mean enrolment $FIO_2$ ($cmH_2O$) | 0.82 | 0.60 | 0.49 | 0.66 |
| Time after meeting enrolment criteria | <48 hours | <48 hours | <48 hours | >12-24 hours |
| Last follow-up investigated | Hospital discharge | Hospital discharge or 28 days | Hospital discharge | 90 days |
| ***Details of Prone positioning*** | | | | |
| Planned duration | 20 hours/day until weaning criteria | 20 hours/day until weaning criteria (max 7d) | 8-23 hours/day until weaning criteria | ≥8 hours/day until weaning criteria |
| Actual duration (average) | 17 hours for 10.1 days | 18 hours for 4 days | 11 hours for 7 days | 9 hours for 4.1 days |
| Prone discontinuation criteria | $FIO_2$ ≤45% and PEEP ≤5 $cmH_2O$ | Spontaneous breathing & OI<6 | $PaO_2/FIO_2$ >300 for 48 hours | clinical improvement [b] |
| Crossover criteria (supine to prone) | $PaO_2$ ≤60 mmHg on $FIO_2$ =1.0 and PEEP =20 $cmH_2O$ | No | No | $PaO_2/FIO_2$ <100 for 12 hours |
| ***Details of Mechanical Ventilation*** | | | | |
| Protective mechanical ventilation | No (*i.e.*, Vt ≤10ml/kg of ABW or estimated BW) | Yes (*i.e.*, Vt 6-7 ml/kg of IBW [f]) | Yes (*i.e.*, Vt 6-8 ml/kg of actual BW at ICU admission) | No |
| Weaning protocol | Yes | Yes | No | Yes |
| Pre-defined sedation targets | Yes | Yes | No | No |

**Appendix 3 (as supplied by the authors):** Characteristics of the randomized controlled trials included in the systematic review (part 3 of 4)

| | Beuret et al (9) 2002 | Watanabe et al (10) 2002 | Gattinoni et al (11) 2001 |
|---|---|---|---|
| ***Patient Characteristics*** | | | |
| Patients | 53 | 16 | 304 |
| Enrolment period | 1997-2000 | 1995-1999 | 1996-1999 |
| Enrolment criteria | Intubated coma (7 ALI/ARDS[a] pts) | $PaO_2/FIO_2$ <200 with PEEP >5 $cmH_2O$ | ALI/ARDS [a] with PEEP ≥5 $cmH_2O$ |
| Mean enrolment $PaO_2/FIO_2$ (mm Hg) | 326 (238 in 7 ALI/ARDS pts) | 166 [g] | 127 |
| Mean enrolment PEEP ($cmH_2O$) | Not reported | Not reported | 10 |
| Mean enrolment $FIO_2$ ($cmH_2O$) | Not reported | Not reported | 0.73 |
| Time after meeting enrolment criteria | <24 hours | 5 days post esophagectomy | not prespecified |
| Last follow-up investigated | Hospital discharge | 4 days | 6 months |
| ***Details of Prone positioning*** | | | |
| Planned duration | 4 hours/day until weaning criteria | 6 hours/day for at 4 days ( fixed duration) | 6 hours/day for 10 days |
| Actual duration (average) | 4 hours for 6.0 days | 6 hours for 4 days | 7 hours for 4.7 days |
| Prone discontinuation criteria | Able to sit in chair | Not applicable | None |
| Crossover criteria (supine to prone) | $PaO_2/FIO_2$ <150 | No | No |
| ***Details of Mechanical Ventilation*** | | | |
| Protective mechanical ventilation | No | No | Consensus conference guidelines [a] |
| Weaning protocol | No | No | No |
| Pre-defined sedation targets | No | Yes | No |

Abbreviations: ABW, actual body weight; ALI, acute lung injury; ARDS, acute respiratory distress syndrome; BW, body weight; CXR, chest x-ray; $FIO_2$, fractional concentration of inspired oxygen; IBW, ideal body weight; OI, oxygenation index; $PaO_2$, partial pressure of arterial oxygen; PEEP, positive end-expiratory pressure; SAPS, Simplified Acute Physiology Score; Vt, tidal volume.

[a] according to the criteria of the American–European Consensus Conference.[12]

[b] Defined by 1 major (relative improvement of $PaO_2/FIO_2$ ≥30% relative to randomization, with $FIO_2$ ≤60%) and at least 1 minor criterion (PEEP ≤8 $cmH_2O$, no sepsis, cause of acute respiratory failure under control (stable or improving chest x-ray, and <3 organ dysfunctions, including lung dysfunction).

[c] predicted body weight was calculated as 50 + 0.91 · (height in centimeters - 152.4) for male patients and as 45.5 + 0.91 · (height in centimeters - 152.4) for female patients.[13]

[d] average over first 2 days only; average number of days proned not available

[e] ideal body weight was calculated as (height in centimeters – 80)· 0.7 for male patients and as (height in centimeters – 70)· 0.6 for female patients

[f] ideal body weight was determined for sex and recumbent length to 3 years of age using the National Center for Health Statistics growth charts. Predicted weight charts for sex/stature beyond 3 years of age was generated by identifying the 50th percentile weight associated with age then linking that data to the 50th percentile height. See http://www.cdc.gov/nchs/nhanes/growthcharts/clinical_charts.htm.

[g] prone group only (baseline $PaO_2/FIO_2$ in supine group not reported)

## References


1. Guérin C, Reignier J, Richard JC, et al. Prone positioning in severe acute respiratory distress syndrome. *N Engl J Med* 2013;368:2159-68.
2. Taccone P, Pesenti A, Latini R, et al. Prone positioning in patients with moderate and severe acute respiratory distress syndrome: a randomized controlled trial. *JAMA* 2009;302:1977-84.
3. Fernandez R, Trenchs X, Klamburg J, et al. Prone positioning in acute respiratory distress syndrome: a multicenter randomized clinical trial. *Intensive Care Med* 2008;34:1487-91.
4. Chan MC, Hsu JY, Liu HH, et al. Effects of prone position on inflammatory markers in patients with ARDS due to community-acquired pneumonia. *J Formos Med Assoc* 2007;106:708-16.
5. Mancebo J, Fernandez R, Blanch L, et al. A multicenter trial of prolonged prone ventilation in severe acute respiratory distress syndrome. *Am J Respir Crit Care Med* 2006;173:1233-9.
6. Curley MA, Hibberd PL, Fineman LD, et al. Effect of prone positioning on clinical outcomes in children with acute lung injury: a randomized controlled trial. *JAMA* 2005;294:229-37.
7. Voggenreiter G, Aufmkolk M, Stiletto RJ, et al. Prone positioning improves oxygenation in post-traumatic lung injury — a prospective randomized trial. *J Trauma* 2005;59:333-41, discussion 341-3.
8. Guerin C, Gaillard S, Lemasson S, et al. Effects of systematic prone positioning in hypoxemic acute respiratory failure: a randomized controlled trial. *JAMA* 2004;292:2379-87.
9. Beuret P, Carton MJ, Nourdine K, et al. Prone position as prevention of lung injury in comatose patients: a prospective, randomized, controlled study. *Intensive Care Med* 2002;28:564-9.
10. Watanabe I, Fujihara H, Sato K, et al. Beneficial effect of a prone position for patients with hypoxemia after transthoracic esophagectomy. *Crit Care Med* 2002;30:1799-802.
11. Gattinoni L, Tognoni G, Pesenti A, et al. Effect of prone positioning on the survival of patients with acute respiratory failure. *N Engl J Med* 2001;345:568-73.
12. Bernard GR, Artigas A, Brigham KL, et al. The American–European Consensus Conference on ARDS. Definitions, mechanisms, relevant outcomes, and clinical trial coordination. *Am J Respir Crit Care Med* 1994;149:818-24.
13. Ventilation with lower tidal volumes as compared with traditional tidal volumes for acute lung injury and the acute respiratory distress syndrome. The Acute Respiratory Distress Syndrome Network. *N Engl J Med* 2000;342:1301-8.