



Prone Positioning for Acute Hypoxaemic Respiratory Failure



Prone positioning is a medical intervention that was initially proposed over 50 years ago as a way to improve gas exchange. Multiple clinical trials have been conducted on its effectiveness, with the Prone Severe ARDS Patients landmark trial demonstrating a mortality benefit in patients with severe ARDS. As a result, expert consensus and societal guidelines now recommend using prone positioning for severe ARDS. The ongoing COVID-19 pandemic has brought prone positioning to the forefront of medicine, with multiple trials investigating its safety and effectiveness in awake, non-intubated patients with acute hypoxemic respiratory failure.

A recent review discusses the physiologic features, clinical outcomes, practical considerations, and questions surrounding prone positioning.

ARDS is associated with high morbidity, mortality, and treatment cost. Supportive care for ARDS includes low tidal volume mechanical ventilation and prone positioning. Historically, prone positioning was limited to severe forms of the disease that progressed to ARDS. Since 2019, the incidence of ARDS has increased significantly due to the COVID-19 pandemic, resulting in high rates of acute hypoxaemic respiratory failure and progression to ARDS. Widespread use of prone positioning in patients with ARDS and impaired gas exchange, who are not mechanically ventilated, was adopted early in the pandemic to maximise gas exchange, despite a lack of evidence of its effectiveness in these conditions.

Historically, prone positioning has been underused, potentially due to the underrecognition of indications and contraindications, concerns about complications and logistical challenges. However, the authors of this review recommend prone positioning for all patients with ARDS as it has been demonstrated to have mortality benefits in moderate to severe ARDS. They also suggest consideration of awake prone positioning for patients with acute hypoxaemic respiratory failure. The only absolute contraindication to prone positioning is an unstable spinal fracture, and relative contraindications include recent sternotomy, large ventral surface area burns, unstable pelvic or long bone fractures, elevated intracranial pressure, and massive haemoptysis.

Prone positioning has multiple physiological benefits for patients with acute hypoxaemic respiratory failure and ARDS. Recent evidence highlights the mortality benefit of prone positioning in ARDS patients. Despite historically being underused, prone positioning has been widely implemented during the COVID-19 pandemic and studied in non-intubated patients with acute hypoxaemic respiratory failure, with some studies showing clinical benefits, including reduced rates of mechanical ventilation. Clinicians should understand the benefits of prone positioning and be ready to implement it in patients with hypoxemic respiratory failure and ARDS.

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