Prone Positioning in COVID-19 Patients Research Review

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Systematic Review and Meta-Analysis of Prone Positioning

Article 1	Effect of prone position on respiratory parameters, intubation and death rate in COVID-19 patients: systematic review and meta-analysis (Behesht Aeen et al., 2021)
Quantitative/ Qualitative? Why?	Mixed method because it employs the Mixed Methods Appraisal Tool
Purpose Statement	“The study aimed to determine the effects of prone positioning on respiratory parameters and outcomes.”
Research Question	Not given
Outcome	“Primary Outcome: the respiratory parameters and respiratory status. Secondary Outcome: death rate and intubation rates.”
Setting	UK, China, Spain
Sample	“28 studies were qualitatively analyzed, and 26 studies with a total sample size of 1272 participants were quantitatively analyzed.”
Method	Systematic review and meta-analysis
Key Finding	“The prone positioning was associated with improved oxygenation parameters and reduced mortality and intubation rate in COVID-19 related respiratory failure.”

Recommendations for Researchers	Perform gender-specific estimation Perform geographical regions or country-specific estimation

Cohort Study of Ventilated COVID-19 Patients

Article 2	Prone positioning improves oxygenation and lung recruitment in patients with SARS-CoV-2 acute respiratory distress syndrome; a single-centre cohort study of 20 consecutive patients. (Clarke et al., 2021)
Quantitative/ Qualitative? Why?	Quantitative because it uses statistical analysis
Purpose Statement	“It aimed to characterize the effects of prone positioning on respiratory mechanics and oxygenation in invasively ventilated patients with SARS-CoV-2 ARDS.”
Research Question	Not given
Outcome	“The main outcome was the effect of prone positioning on gas exchange and respiratory mechanics.”
Setting	Intensive Care Unit (ICU) of a tertiary referral centre
Sample	20 consecutive, invasively ventilated patients with laboratory-confirmed SARS-CoV-2
Method	prospective cohort study
Key Finding	“Prone positioning was effective in improving oxygenation in SARS-CoV-2 ARDS.”
Recommendations for Researchers	Not given

Article 3	Awake prone positioning and oxygen therapy in patients with COVID-19: The APRONOX study Awake Prone Positioning and Intubation Risk (Perez-Nieto et al., 2021)
Quantitative/ Qualitative? Why?	Quantitative because it uses statistical analysis
Purpose Statement	“The study aimed to evaluate intubation and mortality risk in patients with coronavirus disease (COVID-19) who underwent AP during hospitalization.”
Research Question	Not given
Outcome	“Primary Outcome: successful orotracheal intubation for invasive mechanical ventilation Secondary Outcome: death during in-hospital follow-up.”
Setting	27 hospitals in Mexico and Ecuador
Sample	827 non-intubated patients with COVID-19
Method	observational study
Key Finding	AP in hospitalized non-intubated patients with COVID-19 is associated with a lower risk of intubation and mortality.
Recommendations for Researchers	“As studies of awake proning are challenging and randomized, researchers are recommended to conduct controlled trials to fully elucidate its usefulness.”

Non-Intubated Patient Case Review

Article 4	Prone Positioning of Non-intubated Patients with COVID-19 (Damarla et al., 2020)
Quantitative/ Qualitative? Why?	Quantitative because it uses statistical analysis
Purpose Statement	“The study aimed to determine the benefits that patients with COVID-19 and respiratory distress, not yet intubated but at high risk for intubation, might achieve from prone positioning.”
Research Question	Not given
Outcome	“Primary outcome: change in oxygen saturation and respiratory rate before proning and approximately 1 hour after initial proning compared with pre-proning. Secondary outcome: incidence of intubation within 2 weeks of the first prone-positioning trial.”
Setting	Academic medical center
Sample	10 patients
Method	Retrospective review
Key Finding	All patients experienced significant improvement in respiratory status during the initial prone-positioning period.
Recommendations for Researchers	Future research avenues include: “How long does the effect of proning last? Does the beneficial effect of proning continue after supination? Does proning prevent the need for intubation or merely delay it? Could prone positioning accelerate recovery?”

Systematic Review of Awake Prone Positioning

Article 5	Effect of awake prone positioning in COVID-19 patients- A systematic review (Anand et al., 2021)
Quantitative/ Qualitative? Why?	Mixed methods because it employs systematic review of the literature and statistical analysis
Purpose Statement	"We aim to conduct a systematic review of the available literature to highlight the effect of awake proning on the need for intubation, improvement in oxygenation, and mortality rates in COVID-19 patients with ARDS."
Research Question	Not given
Outcome	"The proportion of patients requiring intubation, improvement in oxygenation, and mortality rates."
Setting	Not given
Sample	2 medical databases (PubMed, Google Scholar) 13 studies with 210 patients
Method	Systematic Review of Literature
Key Finding	"Awake-prone positioning demonstrated an improvement in oxygenation of the patients suffering from COVID-19 related respiratory disease."
Recommendations for Researchers	"Early and frequent proning in patients suffering from COVID-19 associated ARDS; however, randomized controlled trials are needed before any definite conclusions are drawn."

PRONE-COVID Clinical Study

Article 6	Prone Position to Improve Oxygenation in COVID-19 Patients Outside Critical Care (PRONE-COVID) (Fuld, 2020)
Quantitative/ Qualitative? Why?	Mixed-Method
Purpose Statement	“The study aims to improve understanding of physiological effects of prone positioning in non-ventilated patients with COVID-19 and a control group of patients with non-COVID-19 related pneumonia. The study also aims to incorporate a small subset of patients, with an approximately even spread of COVID-19 and non-COVID cases, which allows for an additional exploratory, descriptive report on prone positioning over 24 hours.”
Research Question	Not given
Outcome	Effects of prone versus supine or lateral position on respiratory rate, heart rate, blood pressure
Setting	Cambridge University Hospitals NHS Foundation Trust
Sample	56 participants
Method	Interventional Case Study
Key Finding	“Prone positioning improves oxygenation in non-ventilated patients with pneumonia (COVID-19 related or not) requiring supplemental oxygen managed outside of the critical care setting.”
Recommendations for Researchers	“The Intensive Care Society, in non-ventilated patients with COVID-19, has an urgent need to better understand the physiological effects of prone positioning in such cases.”

References

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