

the Wilcoxon test for analysis of change in SpO₂. We assessed the mean risk difference in intubation rates for patients with SpO₂ of 95% or greater vs SpO₂ less than 95% 1 hour after initiation of the prone position. We assessed intubation rates across demographic and other clinical factors with RStudio, version 1.2.5019 (RStudio).

Results | Among 29 eligible patients, 25 had at least 1 awake session of the prone position lasting longer than 1 hour; 4 refused the prone position and were intubated immediately. One hour after initiation of the prone position, SpO₂ increased compared with baseline (Figure). The range of improvement in SpO₂ was 1% to 34% (median [SE], 7% [1.2%]; 95% CI, 4.6%-9.4%). In all patients, the levels of supplemental oxygen were unchanged during the first hour of the prone position. One hour after initiation of the prone position, 19 patients had SpO₂ of 95% or greater; subsequently, 7 (37%) required intubation. Among 6 patients whose SpO₂ remained less than 95% 1 hour after initiation of the prone position, 5 (83%) were intubated. The mean difference in the intubation rate among patients with SpO₂ of 95% or greater vs SpO₂ less than 95% 1 hour after initiation of the prone position was 46% (95% CI, 10%-88%). The Table shows other patient characteristics, none of which were associated with the need for intubation. Among 12 patients who required intubation, 3 died subsequently in the intensive care unit. Among 13 patients who did not require intubation, 9 recovered and were discharged from the hospital, 2 were transferred to the medical ward, and 2 remained in the step-down unit at the time data were censored on May 25, 2020.

Discussion | In this small single-center cohort study, we found that the use of the prone position for awake, spontaneously breathing patients with COVID-19 severe hypoxemic respiratory failure was associated with improved oxygenation. In addition, patients with an SpO₂ of 95% or greater after 1 hour of the prone position was associated with a lower rate of intubation. Limitations of our study are the lack of control group and a small sample size. Randomized clinical trials are needed to establish whether improved oxygenation after use of the prone position in awake, nonintubated patients improves survival.

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Author Contributions: Dr Jelic had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Drs Thompson and Ranard served as co-first authors and contributed equally to the work.

Study concept and design: Thompson, Ranard, Jelic.

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Additional Information: The study was registered on ClinicalTrials.gov on May 25, 2020, owing to the emergency nature of the treatment being administered based on clinical decision to critically ill patients with severe COVID-19 hypoxemic respiratory failure.

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