



Correspondence

Early application of prone position for management of Covid-19 patients



To the Editor,

A novel coronavirus was identified in December 2019 as the cause of acute respiratory failure in Wuhan, China. It has since rapidly spread resulting in a pandemic called COVID-19 [1]. Among the critically ill patients, acute respiratory distress syndrome (ARDS) is the most common presentation. As there are no definite and curative treatments available for the COVID-19 till now, same as any other newly emerged viral disease, almost all of the available therapies are designed to support the body against the virus [2]. Based on the recent guidelines, prone positioning (PP) should be performed as a rescue therapy in severe ARDS patients which can decrease the mortality. The primary effect of PP is due to more uniform alveolar size throughout the lung which is complemented by reduction in the effects of heart and abdomen. It is important to note that because of technical difficulty and long duration of this intervention (12–16 h per day), application of PP should be performed by skilled health care workers [3]. Pan et al. showed that alternating body position between supine and prone was linked to increased lung recruitability in patients with severe ARDS due to COVID-19 [4]. Despite the recent recommendations of guidelines about performing PP, this maneuver is still underused which can be due to its difficulties in clinical practice and it is actually considered as a rescue maneuver. We had 10 cases of COVID-19 patients with hypoxemia ($\text{PaO}_2/\text{FiO}_2 < 150$) which were awake and non-agitated. Beside standard therapeutic intervention, oxygenation was performed with helmet (NIV) in head elevation position with the target SpO_2 of 90–94%. After obtaining the approval of ethics committee, informed consent was taken from the patients or their next of kin. We explained about PP to our patients and then turned them to PP till they felt comfort; otherwise, they were turned to supine position for almost 2 h and thereafter we did the procedure repeatedly. As duration of prone positioning is important in improving oxygenation, we emphasized to the patients to tolerate this position as much as they could. Prone positioning was performed 1 h after meal by the assistance of the patient under the supervision of the clinicians. PP would be continued even in the absence of improved oxygenation if the patient tolerated. Patients' characteristics and outcome are shown in Table 1.

It seems that early identification of high risk and critically ill COVID-19 patients with appropriate management and early application of PP in hypoxemic non-intubated patients results in a modest benefit. Each physician should consider factors like diffuse pulmonary edema and dependent alveolar collapse, elevated intra-abdominal pressure or decreased chest wall compliance of patients before performing PP. Moreover, although routine PP is not recommended in obese patients because of more procedural challenges, this intervention can be performed in obese COVID-19 patients. Using this intervention and possible prevention of intubation is very important for patients who have chronic nocturnal NIV requirements, patients with chronic respiratory failure who have high baseline oxygen requirements, and patients with

do-not-intubate status. Optimization of the safety of this method requires each department to have a written procedure and specific training of its nursing team. Combining other adjunctive therapies with PP appears to have an additive effect in improving oxygenation; thus, it can help clinicians to manage their patients accordingly. Finally, at this critical moment in the global outbreak of COVID-19, our simple and effective clinical expert-guided management can help to achieve success in the battle against the high mortality of COVID-19. This intervention at least acts as “buying time” with minimum cost and damage to decrease the intubation incidence in the critically ill patients.

Table 1
Patients' characteristics during the study.

Variable	Value
Number	10 patients
Mean duration of PP	9 h
Oxygenation	
Before	46.34 ± 5.23
After	62.54 ± 4.57
Sustained improvement (12 mmHg) in SpO_2 after 1 h	60%
Delayed positive results after 12 h (one of them was finally intubated)	30%
Tolerated and discharged from ICU	80%
Intubated and expired	20%
Severe complications (hypotension or desaturation during rotating)	0%

PP: prone positioning.

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Authors' contribution

Majid Golestanieraghi: Conceptualization and investigation.

Ata Mahmoodpoor: Methodology, project administration, and writing original draft.

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Declaration of competing interest

The authors declare no conflict of interest.

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