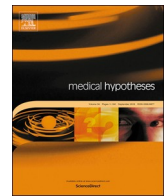




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## Letter to Editors

## The “COVID-19 Score” can predict the need for tracheal intubation in critically ill COVID-19 patients – A hypothesis



Editor,

With the ongoing COVID-19 pandemic caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the global health care has suffered major disruptions. In particular, the health care workers (HCWs) across the world are facing tremendous challenges to cure the patients with significant risk of breaching their own safety. The situation becomes challenging multifold when patients require respiratory support in the form of tracheal intubation and mechanical ventilation which in turn exposes the HCWs to the risk of aerosols transmission. COVID-19 is a disease characterised by massive release of inflammatory mediators (cytokine storm) in critically ill COVID-19 patients, thereby, causing rapid deterioration of respiratory functions [1]. Although, many patients of COVID-19 present with happy hypoxia and have low peripheral oxygen saturations without signs of dyspnea, such patients having hypoxia out of proportion to the patient's symptoms are at high risk of sudden decompensation requiring invasive ventilation [2]. A study from Italy has shown that as many as 88% of

the critically ill COVID-19 patients who required respiratory support needed tracheal intubation and mechanical ventilation [3]. Moreover, unanticipated rapid deterioration requiring emergency tracheal intubation is not uncommon in patients with COVID-19 [4,5]. It is thus prudent to predict the need for tracheal intubation and mechanical ventilation in susceptible critically ill patients so as to abate hypoxia induced multiorgan dysfunction [4]. To contribute to the medical community, we have suggested a scoring system known as “COVID-19 Score” for predicting the likelihood of tracheal intubation in critically ill COVID-19 patients so that appropriate preparation and execution can be done timely and systematically. The score incorporates 5 components namely Consciousness, Oxygenation (based on percentage of oxygen saturation), Vital capacity (based on breathing holding time), Inotropic support and Damage to lungs (based on X-ray/CT scan of chest) with total maximum score of 19 (abbreviated as COVID-19 Score). The first 4 components have scores from 1 to 4 each and the last component has score from 1 to 3, with higher scores indicating greater severity of the disease. The scores of any patient may range from a minimum score of 5 to a maximum score of 19. Higher the total score, higher are the chances of tracheal intubation (Table 1).

**Table 1**  
The “COVID-19 Score”.

Parameters	Responses	Score
C Consciousness	Alert and obeying commands	1
	Drowsy but responsive to verbal commands	2
	Drowsy and responsive to painful stimuli	3
	Unresponsive	4
O Oxygenation	SpO <sub>2</sub> ≥ 92% on room air	1
	SpO <sub>2</sub> ≥ 88% to < 92% on room air	2
	SpO <sub>2</sub> ≥ 88% with O <sub>2</sub> supplementation	3
	SpO <sub>2</sub> < 88% despite O <sub>2</sub> supplementation	4
V Vital Capacity (Breath Holding Time)	≥ 25 Sec (3500 ml VC)	1
	20–25 Secs (3000 ml VC)	2
	15–20 Secs (2500 ml VC)	3
	< 15 Secs (< 2500 ml VC)	4
I Inotropic Support	No support	1
	Single inotrope (low dose)	2
	Single inotrope (moderate dose)	3
	Single inotrope (high dose) or > 1 inotrope	4
D Damage to Lungs (X-Ray/CT Scan of Chest)	None to minimal damage	1
	Moderate damage	2
	Severe damage	3
19	TOTAL MAXIMUM SCORE	19

The “COVID-19 Score” incorporates bedside clinical parameters predominantly based on airway, breathing, circulation and neurological status along with one radiological modality for assessment of the degree of damage to lungs. These are the parameters which are routinely taken into account for deciding the need for tracheal intubation in any critically ill patient. The selection of parameters and the scores given to each parameter was decided on the expert's opinion based on the review of data of COVID-19 patients in our ICU. The advantage of this score is that it does not require any sophisticated investigation and thus can be quickly and easily used in all patients. Again, it is simple and easy to remember (as components and maximum score matches with the name of the disease) and easy to apply into clinical practice. Our hypothesis is that “COVID-19 Score” can anticipate the need for tracheal intubation in critically ill COVID-19 patients. However, a well-designed study will be required to validate this score and to derive a cut-off value above which intubation should be recommended.

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### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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