



Classification of acute respiratory distress syndrome.

Is the current staging distinct?

Amr S Omar^{1*,2, 3}

Email: a_s_omar@yahoo.com;

Yasser Shouman¹

Email: shouman@hotmail.com;

¹ Department of Cardiothoracic Surgery/Cardiac Anaesthesia & ICU,
Heart Hospital, Hamad Medical Corporation, Doha, (PO: 3050), Qatar

² Department of Critical Care Medicine, Beni Suef University, Egypt

³ Weill Cornell medical college-Qatar

The Berlin definition has existed for a few years, and the graciousness of this new classification is that it not only simply classified acute respiratory distress syndrome (ARDS) according to severity but it stratified the therapeutic modalities accordingly. (1) The pandemic caused by coronavirus disease 2019 (COVID-19) and the subsequent severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) placed a major burden for the health care systems globally and regionally. (2) Ulterior critical care teams suffer more, predicting the outcome in these complex situations and aligning the disposition and management option seems to be perfect goals.

The Berlin classification suggested VV-ECMO as possible treatment for severe ARDS. (1) Additionally, previous studies demonstrated the prospective advantages of severe ARDS by veno-venous extracorporeal membrane oxygenation (VV-ECMO). (3, 4) The classification of ARDS was addressed in a work by Oromendia and Siempos, which analyzed high-quality data from the ARDSnet trials. The authors did not find significant mortality differences between moderate versus severe and mild versus moderate ARDS. The encountered differences occurred with respect to ARDS resolution, and ventilator- and intensive care unit (ICU)-free days. (5) More recently, in a randomized clinical trial done by Combes et al., the investigators found no significant 60-day mortality differences when

they compared ECMO versus the conventional mechanical ventilation treatment for severe ARDS in which ECMO was also used as a rescue therapy. These notable and favorable findings were secondary composite end points, and the high crossover rate signals potential benefits from the ECMO treatment. (6) The latter was the first randomized study in this context that shed a light on the need to have more limitations in ECMO treatment for these patients.

In conclusion, in the view of the pandemic burden, recent analyses and trials, we think that it may be a time to reclassify ARDS in which the effective therapeutic modalities conform with the relationship to each class; therefore, a very severe class of ARDS could exist in which VV-ECMO may have a definitive role.

List of abbreviations:

ARDS: acute respiratory distress syndrome;

COVID-19: coronavirus disease 2019;

SARS-CoV-2: acute respiratory syndrome coronavirus-2;

VV-ECMO veno-venous extracorporeal membrane oxygenation

Acknowledgment

This work would not have been possible without the kind support and help of many individuals and our organization.

Funding

No funding exist for this report

Availability of data and materials

NA

Authors' contribution

ASO: study design, contribution to the concepts, writing the manuscript and revising the final form. YS: writing and manuscript revision. All authors read and approved the final

manuscript.

Competing interest

The authors declare that they have no competing interests.

Consent for publication

Not applicable.

Ethics approval and consent to participate

Not applicable.

References

- 1) Ferguson ND, Fan E, Camporota L, et al. The Berlin definition of ARDS: an expanded rationale, justification, and supplementary material. *Intensive Care Med.* 2012 Oct 1;38(10):1573-82.
- 2) Diaz A, Sarac BA, Schoenbrunner AR, et al. Elective surgery in the time of COVID-19. *Am J Surg.* 219 (2020) 900e902.
- 3) Combes A, Brodie D, Bartlett R, et al. Position paper for the organization of extracorporeal membrane oxygenation programs for acute respiratory failure in adult patients. *Am J Respir Crit Care Med* 2014; 190: 488-96.
- 4) Peek GJ, Clemens F, Elbourne D, et al. CESAR: conventional ventilatory support vs extracorporeal membrane oxygenation for severe adult respiratory failure. *BMC health services research.* 2006 Dec;6(1):163.
- 5) Oromendia C, Siempos II. Reclassification of Acute Respiratory Distress Syndrome: A Secondary Analysis of the ARDS Network Trials. *Annals of the American Thoracic Society.* 2018 May 3(ja).
- 6) Combes A, Hajage D, Capellier G., et al., Extracorporeal Membrane Oxygenation for Severe Acute Respiratory Distress Syndrome. *N Engl J Med* 2018;378:1965-75.