

Unresolving COVID-19 acute respiratory distress syndrome: effect of prolonged low-dose corticosteroid rescue therapy. A retrospective monocentric case series.

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Argomento: COVID-19

Background: In a subgroup of patients with COVID-19 related ARDS, respiratory function does not improve despite maximal support therapy, and evolves into a form of organ damage characterized by low respiratory system compliance and widespread alteration of the parenchymal structure. In the absence of therapeutic alternatives, we decided to apply prolonged low-dose steroid rescue therapy as described by Meduri (Meduri.GU et al, JAMA 1998) in non-COVID-19 ARDS population.

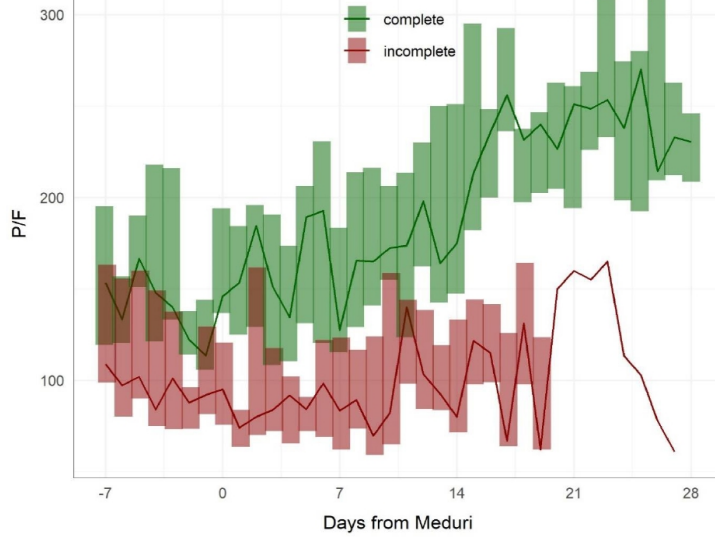
Methods: Retrospective analysis of patients with COVID-19 pneumonia admitted from 01/2020 to 09/2021 to the ICU of University Hospital San Luigi Gonzaga, Turin, Italy.

Results: A total of 158 patients were admitted to ICU with an overall-ICU mortality of 36%; of them, 16 (10%) patients received a 30-days low-dose methylprednisolone rescue therapy because of an un-resolving low-compliance ARDS evolution, with an ICU mortality of 81%. Patients who completed treatment protocol (n=7, 44%) showed a significant improvement in oxygenation (PF from 122[86-150] to 230[209-246] in a 28-days interval, $p < 0.001$) and a reduced necessity of the ventilatory support applied after 16[13.5-18.0] days. In contrast, no variation in respiratory system compliance was observed (p -overall=0.5). In this subgroup of patients, ICU-mortality equaled 43% (n=4), showing an infectious cause in 75% of cases after 63[45.5-69.5] days from protocol initiation. Patients who did not complete treatment protocol (n=9, 56%) showed a disease progression with a significant worsening of both oxygenation ($p < 0.05$) and lung compliance (p 0.03) during the first two weeks, and an ICU-mortality of 100%. Incidence of new infectious events was 69% before the protocol and 87% during treatment (p 0.19); no other clinically relevant complications related to steroid protocol has been observed.

Conclusions: Despite some limitations (retrospective analysis and small sample size), our experience suggest improved oxygenation and ventilatory weaning in patients who concluded steroid treatment in the absence of a documented increased infectious risk.

Figure – PaO₂/FiO₂ ratio variation during “Meduri” steroid rescue protocol

[Results are expressed in terms of median and interquartile range]



	D-7	D 0	D +7	D +14	D +21	D +28
COMPLETE						
PF	153 [119-195]	146 [136-194]	128 [115-184]	175 [147-251]	251 [194-260]	230 [209-246]
Pt alive, (n)	6	7	7	7	7	7
Pt ventilated (n)	6	9	6	4	2	2
INCOMPLETE						
PF	108 [98-163]	95 [75-121]	83 [62-123]	80 [71-133]	160	-
Pt alive, (n)	6	9	6	4	1	0
Pt ventilated (n)	6	9	6	4	1	-

