https://doi.org/10.15360/1813-9779-2022-1-39-40

Dexamethasone and SARS-CoV-2: the Dangerous Steroids Pandemic (Letter to the Editorial Office)

Alessandro Belletti[1], Stefano Fresilli[1], Giovanni Landoni[1,2]*, Alberto Zangrillo[1,2]

[1] Department of Anesthesia and Intensive Care, IRCCS San Raffaele Scientific Institute, 60 Via Olgettina, 20132 Milan, Italy
[2] School of Medicine, Vita-Salute San Raffaele University, 60 Via Olgettina, 20132 Milan, Italy

Дексаметазон и SARS-CoV-2: опасная пандемия применения стероидов (письмо в редакцию)

А. Беллетти[1], С. Фрезилли[1], Дж. Ландони[1,2]*, А. Дзангрилло[1,2]

[1] Научный институт IRCCS Сан-Рафаэле, Отделение анестезии и интенсивной терапии, Италия, 20132, Милан, Виа Олжиттина, д. 60
[2] Университет Вита-Салюте Сан-Рафаэле, Медицинский факультет, Италия, 12132, Милан, Виа Олжиттина, д. 60

For citation: *Alessandro Belletti, Stefano Fresilli, Giovanni Landoni, Alberto Zangrillo.* Dexamethasone and SARS-CoV-2: the Dangerous Steroids Pandemic (Letter to the Editorial Office). *Obshchaya Reanimatologiya = General Reanimatology.* 2022; 18 (1): 39–40. https://doi.org/10.15360/1813-9779-2022-1-39-40 [In Russ. and Engl.]

DOI:10.15360/1813-9779-2022-1-39-40

As of August 4, 2021 severe acute respiratory syndrome-Coronavirus 2 (SARS-CoV-2) has so far caused 4,235,559 deaths [1]. The most serious coronavirus disease 2019 (COVID-19) cases develop a life-threatening hyperinflammatory response to the virus with massive release of pro-inflammatory cytokines. Many efforts have been sustained to find a suitable therapy for this new disease.

Given the lack of a proven antiviral therapy, various immunosuppressive agents have been tested with the aim to reduce the hyperinflammatory state associated with COVID-19 and therefore improve patient prognosis. The RECOVERY trial [2], reported the beneficial effect 6 mg dexamethasone administration for ten days once a day in COVID-19 patients. The incidence of death in the dexamethasone group compared with the control group was 23.3% vs 26.2% for patients receiving oxygen, and 29.3% vs 41.4% for patients on mechanical ventilation at the time of randomization.

However, the study was not blinded. This is relevant as blinded trials appear to generally have a 40% higher number-needed-to-treat as compared with open-label studies [3]. Notably, three out of five randomized clinical trials analysing corticosteroids administration in COVID-19 patients published so far including the RECOVERY trial, were open label. Therefore, we posit that effect size for corticosteroid use in COVID-19 is probably overestimated.

Furthermore, while corticosteroids may reduce the hyperimmune response underlying the most severe cases of COVID-19, the immunosuppressive action of the drug is likely to promote the coinfections that characterize the course of many clinical cases.

Of note, even if the use of corticosteroids in hospitalized patients with severe forms of COVID-19 decreases mortality with a number needed to treat of 19, the use in SARS-CoV-2 infected persons with no indication may lead to a rise in mortality with a number needed to harm of 28 [4].

Unfortunately, the rate of people infected with SARS-CoV-2 with correct indications for corticosteroid use is significantly lower than the number of people without indications [5]. Nevertheless, there is currently a worldwide indiscriminate use of corticosteroids regardless of indications [6]. We therefore propose that considerable effort should be directed to the education of

Correspondence to:

* Giovanni Landoni
E-mail: landoni.giovanni@hsr.it, @giovannilandoni, @SRAnesthesiaICU

Адрес для корреспонденции:

* Ландони Джованни
E-mail: landoni.giovanni@hsr.it, @giovannilandoni, @SRAnesthesiaICU

physicians to avoid an incorrect use of steroids, which although beneficial on a limited number of patients, can be harmful and lethal in most people infected by SARS-CoV-2.

Conflicts of interest. Authors declare no conflict of interest.

References

1. WHO Coronavirus Disease (COVID-19) Dashboard, https://covid19. who.int. [accessed 4 August 2021].
2. *RECOVERY Collaborative Group, Horby P., Lim W.S., Emberson J.R., Mafham M., Bell J.L., Linsell L., Staplin N., Brightling C., Ustianowski A., Elmahi E., Prudon B., Green C., Felton T., Chadwick D., Rege K., Fegan C., Chappell L.C., Faust S.N., Jaki T., Jeffery K., Montgomery A., Rowan K., Juszczak E., Baillie J.K., Haynes R., Landray M.J.* Dexamethasone in Hospitalized Patients with Covid-19 - Preliminary Report. *N Engl J Med.* 2020 Jul 17: NEJMoa2021436. DOI: 10.1056/ NEJMoa2021436. Epub ahead of print. PMID: 32678530; PMCID: PMC7383595.
3. *Baiardo Redaelli M., Belletti A., Monti G., Monti G., Lembo R., Ortalda A., Landoni G., Bellomo R.* The impact of non-blinding in critical care medicine trials. *J Crit Care.* 2018; 48: 414–417. DOI: 10.1016/ j.jcrc.2018.09.031.
4. *Pasin L., Navalesi P., Zangrillo A., Kuzovlev A., Likhvantsev V., Hajjar L.A., Fresilli S., Lacerda M.V.G., Landoni G.* Corticosteroids for Patients With Coronavirus Disease 2019 (COVID-19) With Different Disease Severity: A Meta-Analysis of Randomized Clinical Trials. *J Cardiothorac Vasc Anesth.* 2021; 35 (2): 578–584. DOI: 10.1053/j.jvca. 2020.11.057. Epub 2020 Nov 28. PMID: 33298370. PMCID: PMC7698829.
5. *Tabata S., Imai K., Kawano S., Ikeda M., Kodama T., Miyoshi K., Obinata H., Mimura S., Kodera T., Kitagaki M., Sato M., Suzuki S., Ito T., Uwabe Y., Tamura K.* Clinical characteristics of COVID-19 in 104 people with SARS-CoV-2 infection on the Diamond Princess cruise ship: a retrospective analysis. *Lancet Infect Dis.* 2020; 20 (9): 1043–1050. DOI: 10.1016/S1473-3099(20)30482-5. Epub 2020 Jun 12. PMID: 32539988. PMCID: PMC7292609.
6. *Alessi J., de Oliveira G.B., Schaan B.D., Telo G.H.* Dexamethasone in the era of COVID-19: friend or foe? An essay on the effects of dexamethasone and the potential risks of its inadvertent use in patients with diabetes. *Diabetol Metab Syndr.* 2020; 12: 80. DOI: 10.1186/s13098-020-00583-7. PMID: 32922517. PMCID: PMC7476640.

Received 04.08.2021, online first 25.10.2021