Steroid administration in the Covid-19 era; timing does matter!

Petros V. Vlastarakos¹ · Dimitrios Katsianos²

Received: 21 October 2020 / Accepted: 28 October 2020 / Published online: 12 November 2020
© Springer-Verlag GmbH Germany, part of Springer Nature 2020

Sir,

Oral steroid administration represents a common practice in various ENT pathologies, i.e. idiopathic sudden sensorineural hearing loss (SSNHL), or acute post-viral anosmia. Indeed, steroid administration is associated with a high chance of hearing recovery in the former case [1], whilst an improvement in olfactory recognition indicates that steroids may be effective for acute, reversible stages of olfactory mucosal injury in the latter condition [2].

The novel coronavirus SARS-CoV-2 is a positive-sense RNA virus, acknowledged of infecting humans over the last year. The clinical features of confirmed cases include lower respiratory tract illness with fever, dry cough, and dyspnoea [3]. The acute respiratory distress syndrome (ARDS) observed in a significant proportion of fragile patients, roughly after the second week, is apparently attributed not only to an uncontrolled viral replication but also to an out-of-control host response [4].

Exogenous glucocorticoids have traditionally been associated with immune suppression. Hence, their use during the Covid-19 pandemic has generally been discouraged, as they may exert a detrimental effect on the innate immunity, thus limiting the first line of defense, and increasing the plasma viral load. Nevertheless, adaptive immunity should also be taken into account, with regard to Covid-19 immunopathology, as the respective ARDS onset coincides with the appearance of a specific antibody against SARS-CoV-2 [5]. Steroid therapy, in this case, has been associated with lower mortality rates and increased 28-day survival [6, 7].

The timing of steroid treatment in the Covid-19 era seems, therefore, to be of paramount importance, improving

the chances of a positive outcome in critically ill patients, but also posing as a potential threat for patients, who have not yet surpassed the higher obstacles. Indeed, ENT surgeons should not overlook that the recent successful steroid administration in a SARS-CoV-2 patient with SSNHL reported by Koumpa et al. [8] involved a patient, who had already been discharged from ICU, whilst the successful steroid treatment of a post- SARS-CoV-2 anosmic patient reported by Touisserkani and Ayatollahi [9] was attempted when the PCR result was negative.

Hence, caution is warranted, when ENT surgeons are facing emergencies involving SSNHL or chemosensory deficits, and the pros and cons of steroid administration should be carefully weighed, taking not only the possibility of a SARS-CoV-2 infection into account but also the stage upon which the infection appears to lie. A multidisciplinary team working with infectious-disease specialist input represents the main mechanism of the optimal clinical decision-making in SARS-CoV-2 infection-perplexed ENT emergencies, in an effort to successfully guide patients throughout their disease trajectory.

Acknowledgements Dr. John Plioutas for his personal interest in his ENT colleagues during the early days of the pandemic.

Funding The authors have no financial interest and have not received any financial support for this article.

Compliance with ethical standards

Conflict of interest The authors have no conflicts of interest and have not received any financial support for this article.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

✉ Petros V. Vlastarakos
pevl@hotmai.com; pevl@yahoo.gr

¹ ENT Department, MITERA Infirmary, 6 Erythrou Stavrou Str, 15123 Marousi-Athens, Greece

² Department of Internal Medicine, MITERA Infirmary, 6 Erythrou Stavrou Str, 15123 Marousi-Athens, Greece

References

1. Wilson WR, Byl FM, Laird N (1980) The efficacy of steroids in the treatment of idiopathic sudden hearing loss. A double-blind clinical study. *Arch Otolaryngol* 106(12):772–776
2. Miwa T, Ikeda K, Ishibashi T et al (2019) Clinical practice guidelines for the management of olfactory dysfunction—secondary publication. *Auris Nasus Larynx* 46(5):653–662
3. Shi H, Han X, Jiang N et al (2020) Radiological findings from 81 patients with COVID-19 pneumonia in Wuhan, China: a descriptive study. *Lancet Infect Dis* 20(4):425–434
4. Isidori AM, Arnaldi G, Boscaro M et al (2020) COVID-19 infection and glucocorticoids: update from the Italian Society of Endocrinology Expert Opinion on steroid replacement in adrenal insufficiency. *J Endocrinol Invest* 43(8):1141–1147
5. Long QX, Liu BZ, Deng HJ et al (2020) Antibody responses to SARS-CoV-2 in patients with COVID-19. *Nat Med* 26(6):845–848
6. Mahase E (2020) Covid-19: low dose steroid cuts death in ventilated patients by one third, trial finds. *BMJ* 369:m2422
7. Wu C, Chen X, Cai Y et al (2020) Risk factors associated with acute respiratory distress syndrome and death in patients with coronavirus disease 2019 pneumonia in Wuhan, China. *JAMA Intern Med* 180(7):1–11
8. Koumpa FS, Forde CT, Manjaly JG (2020) Sudden irreversible hearing loss post COVID-19. *BMJ Case Rep* 13:e238419
9. Touisserkani SK, Ayatollahi A (2020) Oral corticosteroid relieves post-COVID-19 anosmia in a 35-year-old patient. *Case Rep Otolaryngol* 2020:5892047

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.