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2. Dessie ZG, Zewotir T. Mortality-related risk factors of COVID-19: a systematic review and meta-analysis of 42 studies and 423,117 patients. *BMC Infect Dis.* 2021;21:855.
3. Zhang L, Hou J, Ma FZ, Li J, Xue S, Xu ZG. The common risk factors for progression and mortality in COVID-19 patients: a meta-analysis. *Arch Virol.* 2021;166:2071–87.
4. Becker DE. Basic and clinical pharmacology of glucocorticosteroids. *Anesth Prog.* 2013;60:25–32.
5. Pérez-Belmonte LM, Sanz-Cánovas J, Salinas A, Sagastagoitia Fornie I, Méndez-Bailón M, Gómez-Huelgas R, et al. Corticosteroid therapy in patients with heart failure hospitalized for COVID-19: a multicenter retrospective study. *Intern Emerg Med.* 2021;16:2301–5.
6. Horby P, Lim WS, Emberson JR, Mafham M, Bell JL, Linsell L, et al. RECOVERY Collaborative Group. Dexamethasone in hospitalized patients with Covid-19. *N Engl J Med.* 2021;384:693–704.
7. Hasan SS, Kow CS, Mustafa ZU, Merchant HA. Does methylprednisolone reduce the mortality risk in hospitalized COVID-19 patients? A meta-analysis of randomized control trials. *Expert Rev Respir Med.* 2021;15:1049–55.
8. Kow CS, Hasan SS. Dexamethasone or hydrocortisone in COVID-19? *Cleve Clin J Med.* 2020;87:715.
9. Liu C, Liu K. Effects of glucocorticoids in potentiating diuresis in heart failure patients with diuretic resistance. *J Card Fail.* 2014;20:625–9.
10. Kow CS, Zaihan AF, Ramachandram DS, Hasan SS. IL-6 antagonists to replace systemic corticosteroids as the preferred anti-inflammatory therapy in patients with COVID-19? *Cytokine.* 2022 Jan;149:155730.

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Answer to the “Glucocorticoid therapy in patients with COVID-19 and concurrent heart failure” correspondence[☆]



Respuesta a la carta «Tratamiento con glucocorticoides en pacientes con COVID-19 e insuficiencia cardíaca concurrente»

Dear Director,

We are grateful for the comments on our article “Clinical characteristics and risk factors for mortality upon admission in patients with heart failure hospitalized due to COVID-19 in Spain.”¹ Indeed, glucocorticoid (GC) use was greater in patients with heart failure (HF) hospitalized for COVID-19 who died. This can be explained by the effects of the mineralocorticoid and sodium and water retention, as the letter’s authors correctly indicate.²

Unfortunately, we do not have specific data regarding the type of GC used; the only data recorded were whether they were used or not, the dose used, and the duration of treatment (SEMI-COVID-19 Registry).³ However, the following considerations should be noted:

First, the most used GC during the first wave of the epidemic in Spain was methylprednisolone, as a recent article indicated.⁴ Evidence on the reduction in mortality associated with the use of dexamethasone was not reported until

later on⁵ and as such, it was used less in our country during the first wave.

Second, the initial multivariable analysis conducted in our study included patients’ baseline clinical variables at the time of admission and did not include variables regarding treatment administered. We are currently working on a larger, more focused database in order to discern the effect of treatment, including the use of GC (especially dexamethasone) on this profile of patient.

Lastly, and in contrast to the possible deleterious effect of GC in patients with HF, it should be noted that some recent works have demonstrated the utility of other drugs in patients with HF during hospitalization for COVID-19. Patients with HF who continued treatment with renin-angiotensin-aldosterone system inhibitors during hospitalization had lower in-hospital mortality rates than those who did not receive them or in whom they were suspended.⁶

In conclusion, according to our results, GC should be used with caution in patients with HF, weighing their risks and benefits. More prospective, controlled studies on the use of GC in patients with HF and COVID-19 are needed to confirm these results.

References

1. Salinas-Bostrán A, Sanz-Cánovas J, Pérez-Somarriba J, Pérez-Belmonte LM, Cobos-Palacios L, Rubio-Rivas M, et al. Características clínicas y factores de riesgo de mortalidad al ingreso en pacientes con insuficiencia cardíaca hospitalizados por COVID-19 en España. *Rev Clin Esp.* 2022;222:255–65.
2. Kow CS, Ramachandram DS, Hasan SS. Tratamiento con glucocorticoides en pacientes con COVID-19 e insuficiencia cardíaca concurrente. *Rev Clin Esp.* 2022;222:309–10.
3. Casas-Rojo JM, Antón-Santos JM, Millán-Núñez-Cortés J, Lumbreras-Bermejo C, Ramos-Rincón JM, Roy-Vallejo E, et al. Características clínicas de los pacientes hospitalizados con COVID-19 en España: resultados del Registro SEMI-COVID-19. *Rev Clin Esp.* 2020;220:480–94.

[☆] Please cite this article as: Salinas-Bostrán A, Pérez-Belmonte LM, Méndez-Bailón M. Respuesta a la carta «Tratamiento con glucocorticoides en pacientes con COVID-19 e insuficiencia cardíaca concurrente». *Rev Clin Esp.* 2022;222:310–311.

4. Pérez-Belmonte LM, Sanz-Cánovas J, Salinas A, Sagastagoitia Fornie I, Méndez-Bailón M, Gómez-Huelgas R, et al. Corticosteroid therapy in patients with heart failure hospitalized for COVID-19: a multicenter retrospective study. *Intern Emerg Med.* 2021;1–5, doi:10.1007/s11739-021-02843-4 [online ahead of print].
5. Horby P, Lim WS, Emberson JR, Mafham M, Bell JL, RECOVERY Collaborative Group. Dexamethasone in hospitalized patients with Covid-19. *N Engl J Med.* 2021;384:693–704.
6. Pérez-Belmonte LM, Sanz-Cánovas J, Salinas A, Garcia-Klepzig JL, Méndez-Bailón M, Gómez-Huelgas R. Adverse outcomes in patients with heart failure admitted for COVID-19 in association with renin-angiotensin-aldosterone system inhibitors. *Pol Arch Intern Med.* 2021, doi:10.20452/pamw.16126 [online ahead of print].

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