



Bone & Joint Open

McKean D, Chung SL, Fairhead R, et al. Corticosteroid injections during the COVID-19 pandemic: experience from a UK centre. *Bone Joint Open*. 2020;1(9):605-611.

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Sir,

I read the study by McKean et al with great interest and would like to commend the authors on the hard work it must have taken to complete this study.¹ The overall message is clear. No adverse clinical outcomes related to COVID-19 infection were seen after corticosteroid injections (CSI) in this cohort of 443 patients.

I also think that by doing some simple calculations, this study can be used to highlight just how hard it is to address the question of whether CSI increases the risk of significant complications from COVID-19 infection. If one assumes an infection fatality rate (IFR) of 0.5%, an infection hospitalization rate of 5%,² and a 0.5% risk of developing COVID-19 without a steroid injection over a month or two of pandemic, then one can assume the rate of significant COVID-19 infection in the absence of CSI is likely to be approximately 0.025%. Based on the existing evidence base in which a 50% increase in the rate of infection is seen with doses of > 700 mg prednisolone,³ one can then estimate the numbers required in a case control study to be 90% certain of detecting an increase in the significant COVID-19 infection rate to 0.0375%. Using $\alpha = 5\%$ and $\beta = 10\%$, and powering for superiority, one needs a total sample size of 840,572 patients (420,286 in each group)!⁴ I think this number speaks for itself: I hope researchers do this simple calculation before embarking down this blind alley.

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1. **McKean D, Chung SL, Fairhead R, et al.** Corticosteroid injections during the COVID-19 pandemic: experience from a UK centre. *Bone Joint Open*. 2020;1(9):605-611.
2. **Meyerowitz-Katz G, Merone L.** A systematic review and meta-analysis of published research data on COVID-19 infection-fatality rates. *Int J Infect Dis*. 2020;S1201-9712(20)32180-9.
3. **Youssef J, Novosad SA, Winthrop KL.** Infection Risk and Safety of Corticosteroid Use. *Rheum Dis Clin North Am*. 2016;42(1):157-176.
4. **No authors listed.** Power calculator for binary outcome superiority trial. Sealed Envelope.

<https://www.sealedenvelope.com/power/binary-superiority/> (date last accessed 23 October 2020).

Conflict of Interest: None