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Letter to the Editor

Use of corticosteroid injections in current COVID pandemic – Time to rethink!!

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Dear Editor,

There is the current concern within the radiology community regarding corticosteroid (CS) injection procedures during the current COVID-19 pandemic. This is especially true for musculoskeletal radiologists carrying out ultrasound-, CT-, and X-ray-guided injections on an almost daily basis.

The benefits of CS injection are clear and include easing pain and improving mobility, allowing a patient to potentially better tolerate or combat viral infection. However, a significant patient cohort will experience worsening of symptoms. In light of this and the current context of a global pandemic, this begs the question of whether it is worth continuing with CS injections at all. While steroids are known to reduce inflammation by inhibiting cytokines, they can potentially inhibit the body's ability to mount an immune response to illness by decreasing viral clearance and prolonging viremia.[1] The true immunological impact of CS injection in a patient with COVID-19 is currently unknown. There is a theoretical danger that asymptomatic patients harboring the virus could become unwell following CS injection. This risk is clearly more profound in at-risk groups, including the elderly and those with multiple comorbidities. However, these groups, unfortunately, make up the vast majority of patients that radiologists and clinicians see and perform CS injections on. There is also a risk of patients passing on the infection to patients, hospital staff, and person performing the procedure itself.

At present, there is very limited guidance regarding this. The British Society of Skeletal Radiologists has very recently published guidance declaring that all intra-articular and perineural CS injections should be avoided.[2] However, not all hospital trusts within the UK have stopped elective procedures, and many worldwide are still continuing with outpatient CT and ultrasound injection lists as normal. The general consensus is that clinicians are consenting patients for reduced immunity, leading to potential viral infection. While this may seem adequate and, of course, legally binding, in our experience, patients will tend to place their own current symptoms as a priority over a potential viral infection, which they may never succumb to. It is unclear whether us as clinicians truly understand the potential risk of CS injection well enough to properly inform the patient.

At present, there are no large-scale studies showing any direct relationship between CS and COVID-19-related illness. A recent study in China where 11 out of 31 patients received CS treatment for COVID-19 acute respiratory distress syndrome showed that although mortality

was not increased, there was delayed viral clearance and an increase in various markers of disease severity.[3] However, the given steroid dose was much higher than a routine CS injection, and a much younger patient cohort (mean age 39 years) was studied; thus, the results may not truly translate across all patient demographics.

The current WHO and CDC guidance for COVD-19 patients are to avoid the routine use of systemic CSs.[4,5] This is based on several observational studies analyzing mortality risk, with one, in particular, reporting the effect of intra-articular CS injections in patients during influenza season.[6] This 2018 Mayo Clinic study showed that vaccinated patients receiving a major CS joint injection were at increased risk of influenza compared to vaccinated control patients with no injection. Thus, CS-treated patients had a reduction in vaccine efficacy. This was especially true for females under 65 receiving CS injection into a major joint. Even though influenza is structurally a different entity to coronavirus, both have similar modes of transmission and symptoms, although COVID-19 leads to more severe illness. There is no reason to believe that CS injection would not reduce the efficacy of a potential COVID-19 vaccine when available.

Several studies have analyzed the use of steroids during the SARS and MERS-coronavirus outbreak. Regarding the latter, Arabi *et al.* showed that half of the patients given CSs needed mechanical ventilation, vasopressors, and renal replacement therapy.[7] While CS was not associated with a decreased 90-day mortality rate, it was linked with decreased viral load clearance, perhaps leading to the mentioned consequences. Three meta-analyses of CS use in the SARS outbreak all concluded that CS caused harm.[8-10] The authors reported on delayed viral clearance from the blood, psychosis, CS-induced diabetes, as well as avascular necrosis.[8-10] A systemic review of all published trials and meta-analysis in March 2019 also reported a higher mortality risk in patients with influenza pneumonia who received CS.[11] It should be noted, however, that the majority of these studies use CS doses much higher than typically seen in intra-articular or perineural injections. However, triamcinolone acetonide 40 mg is still equivalent to 10 times the daily physiological steroid production. In our experience, it is quite common for patients to have multiple injections within a 1 year period resulting in a high cumulative dose. Epidural steroids, including dexamethasone, have been shown to cause a degree of adrenal suppression for at least 3–4 weeks.[12]

The WHO has officially stated that although no direct evidence for CS-induced COVID-19 illness exists, the previous studies at least suggest that there are potential adverse health outcomes for immunological suppression in a patient incubating coronavirus. There is no reason to believe that patients treated with CS during the current pandemic should receive any significant benefit and will more likely be harmed as the evidence for other novel viruses have already shown.

From the evidence presented above and the WHO guidelines, our recommendations are as follows:

- All CS injection procedures should be avoided during the COVID-19 pandemic to reduce the risks highlighted above
- A large majority of these patients fall under a high-risk group (over 70 years old and those with multiple comorbidities). Such patients should not even attend hospital appointments (unless life- and limb-threatening condition) during the current pandemic and, therefore, clearly not receive CS injections
- Alternative non-steroid pain injections or interventions could be considered, for example, sodium hyaluronate. A local anesthetic could be considered for "diagnostic" injections and those to identify any pain generators
- A small subset of patients will need CS injections for strong/urgent clinical reasons. This should be discussed with the clinical team, and a thorough assessment should be made following review.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Annane D. Pro: The illegitimate crusade against corticosteroids for severe H1N1 pneumonia. Am J Respir Crit Care Med 2011;183:1125-6.
2. Available from: https://www.bssr.org.uk/static/uploads/forum/musculoskeletal_radiology_during_the_COVID-19_global_pandemic.pdf. [Last accessed on 2020 Mar 23].
3. Zha L, Li S, Pan L, Tefsen B, Li Y, French N, *et al*. Corticosteroid treatment of patients with coronavirus disease 2019 (COVID-19). Med J Aust 2020;212:416-20.
4. Available from: https://www.emergency.cdc.gov/coca/ppt/2020/V4_combined_critically-ill-adults-COCA-4.2.2020.pdf. [Last accessed on 2020 Mar 23].
5. Available from: https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf. [Last accessed on 2020 Mar 23].
6. Sytsma TT, Greenlund LK, Greenlund LS. Joint corticosteroid injection associated with increased influenza risk. Mayo Clin Proc Innov Qual Outcomes 2018;2:194-8.
7. Arabi YM, Mandourah Y, Al-Hameed F, Sindi AA,

Almekhlafi GA, Hussein MA, *et al*. Corticosteroid therapy for critically ill patients with middle east respiratory syndrome. Am J Respir Crit Care Med 2018;197:757-67.
8. Lee N, Allen Chan KC, Hui DS, Ng EK, Wu A, Chiu RW, *et al*. Effects of early corticosteroid treatment on plasma SARS-associated coronavirus RNA concentrations in adult patients. J Clin Virol 2004;31:304-9.
9. Xiao JZ, Ma L, Gao J, Yang ZJ, Xing XY, Zhao HC, *et al*. Glucocorticoid-induced diabetes in severe acute respiratory syndrome: The impact of high dosage and duration of methylprednisolone therapy. Zhonghua Nei Ke Za Zhi 2004;43:179-82.
10. Li YM, Wang SX, Gao HS, Wang JG, Wei CS, Chen LM, *et al*. Factors of avascular necrosis of femoral head and osteoporosis in SARS patients' convalescence. Zhonghua Yi Xue Za Zhi 2004;84:1348-53.
11. Ni YN, Chen G, Sun J, Liang BM, Liang ZA. The effect of corticosteroids on mortality of patients with influenza pneumonia: A systematic review and meta-analysis. Crit Care 2019;23:99.
12. Friedly JL, Comstock BA, Heagerty PJ, Bauer Z, Rothman MS, Suri P, *et al*. Systemic effects of epidural steroid injections for spinal stenosis. Pain 2018;159:876-83.

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