

Neuro-axial steroid injection in pain management and COVID-19 vaccine

The novel coronavirus pandemic (COVID-19), which began in late 2019, has affected all aspects of our everyday life. The medical ecosystem has changed profoundly, at times stretching its capacity, to provide proper healthcare to all those in need.

Recent investigations have focused on the impact of the virus on the emergency departments and intensive care units. However, outpatient care has also been fundamentally transformed since the pandemic. There is no consensus on the best way to manage patients with severe pain during the COVID-19 pandemic. Multiple guidelines have been developed regarding staffing, mitigation of risk, increased utilisation of telemedicine and increased opioid prescribing. Recent publication also demonstrated the altered practice and marked reduction patterns of interventional pain physicians in the United States (Joyce et al., 2020).

A new aspect of this pandemic regards the impact of the newly developed vaccines on patient care, which is of particular relevance due to the recent implementation of mass vaccination programmes all over the world.

A substantial percentage of patients treated in pain management units is elderly, often with systemic comorbidities and hence, according to the epidemiological data, fall into an increased risk group for severe illness (Evidence used to update the list of underlying medical conditions that increase a person's risk of severe illness from COVID-19).

Therefore, is it to be expected that a large part of the population reaching pain management units will have been vaccinated or soon-to-be vaccinated. Taking into consideration, the huge amount of neuro-axial corticosteroid injections carried out annually (50,000/year in Israel only), there is a clear need to carefully evaluate the procedures and requirements involved in these injections.

Corticosteroid Injections (CSI) are a key treatment for a wide range of musculoskeletal and degenerative conditions. When injected either to the spinal epidural space or in an intra-articular manner, CSIs are widely considered good practice for diagnostic and therapeutic purposes prior to committing to orthopaedic surgery.

CSIs have systemic effects, two of which are systemic immune depression (both the innate and adaptive responses) and HPA-axis depression (Miller et al., 2020). These systemic effects raise concerns regarding COVID-19 patients

and those receiving the vaccination. As such, at the early stages of the pandemic, guidelines were published advising against the use of CSIs. However, more recent investigations suggest that CSIs are most likely a viable treatment for most of the low-risk patients (McKean et al., 2020). A study of image-guided CSIs for pain management performed during the initial lockdown period of the COVID-19 pandemic suggested that these injections were not associated with a higher infection rate than the general population (Chang et al.,). In fact, CSI may be of even greater use given the restricted access to other medical services and elective surgical options during the current crisis.

A similar analysis is required regarding the interaction between CSIs and the newly developed COVID-19 vaccine. Studies suggest that in immune-suppressed individuals, the humoral immune response may be compromised, causing a decreased immune response to vaccination. A large US-based study concluded that patients who received the influenza vaccination and underwent joint CSI before or during the influenza season had a higher relative risk ratio (Sytsma et al., 2018).

In order to manage the risks of the interaction between the steroids and the vaccine, a new set of guidelines was recently developed within our Pain Institute. First, patients are warned of the immunosuppression risks of CSIs and are advised not to receive steroid injections during the 5-week period beginning 1-week prior to the first dose of the vaccine until 1-week after the second dose. Second, in the cases where the patient, after being informed about the risks, insists on receiving an injection, dexamethasone is used. Dexamethasone has been shown to have a shorter duration of systemic effect and is, therefore, favoured over other steroids in these circumstances.

We believe that these guidelines provide sound advice to physicians performing CSIs as part of their treatment plan and are highly relevant as a worldwide effort to mass vaccinate come into effect.

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How to cite this article: Brill S, Hochberg U, Goor-Aryeh I. Neuro-axial steroid injection in pain management and COVID-19 vaccine. *Eur J Pain*. 2021;25:945–946. <https://doi.org/10.1002/ejp.1749>