

## ASIPP GUIDANCE DOCUMENT ON COVID-19 VACCINE AND STEROIDS

The American Society of Interventional Pain Physicians has received numerous requests on potential guidance regarding the use of steroid injections during COVID-19 and specifically guidance on the use of steroids in injections, before and after being vaccinated.

Currently, two vaccines are approved in the United States; Pfizer and Moderna which are both mRNA vaccines and do not contain live viruses. Additionally, patients who are immuno-compromised and even patients who have stable HIV, were enrolled in the clinical trials needed for approval.

Corticosteroid-related immunosuppression has been discussed since the 1950s (1). However, corticosteroid-related immunosuppression has not been a significant consideration in interventional pain management prior to the COVID-19 era, with substantial discussions and concerns about the effects of injectable steroids on the immune system (2-5). Interventional pain physicians administer steroids for various procedures, including epidurals and intraarticular injections. The steroid use has been shown to increase the risk of influenza (6); however, there are no studies regarding COVID-19, and it has been speculated that steroids might have a beneficial effect on the course of COVID-19, even though steroids can be immunosuppressive (7). Initial reports showed the beneficial effect of steroids. In fact, a systematic review and meta-analysis of 7 clinical trials across 12 countries have concluded that corticosteroids are associated with lower mortality among critically ill patients with COVID-19 when compared to the usual care or placebo (8). Despite this comforting news, ASIPP guidelines and multiple other guidelines caution against using steroids during the COVID-19 season, and many of the practices have curtailed using the steroids, or are using in low doses (3-5,9).

One of the main side effects of steroids is hypothalamic-pituitary-adrenal (HPA) suppression (5). Friedly et al (10) showed that patients treated with methylprednisolone or triamcinolone had an average 3-week cortisol reduction of 41% and 41.6% from baseline, respectively. Further comparison with patients treated with betamethasone or dexamethasone, found no significant changes with cortisol and they were similar lidocaine alone. Hooten et al (11) showed that terminal elimination half-life of lumbar epidurally administered triamcinolone in a noncompartmental analysis was 22 days and the peak times in concentration was detected within 24 hours after administration. Abdul et al (12) in 2017, reported that after one epidural injection of 80 mg of methylprednisolone, 87% of patients exhibited HPA axis suppression at day 7 post injection, 43% at day 14, and 7% at day 28. Habib et al (13) in 2013, found a dose-dependent effect in a study examining the magnitude and duration of this suppression of the single epidural injection of methylprednisolone, with 86% of patients exhibiting HPA suppression with 80 mg dosage and 53% with 40 mg of dosage, with 20% of all participants continue to have suppression at 4 weeks post injection. Consequently, it is presumed that endocrine disruption from a single epidural steroid injection suggests similar systemic effects on immune response.

Adverse immune influences of corticosteroids during influenza infection is of increased concern for those prescribed or injected with corticosteroids, with specific concerns during the current COVID-19 epidemic. Meta-analysis of early-administered corticosteroids versus placebo demonstrates an increased risk of influenza infection within the steroid group. A dose-dependent relationship for infection risk has been demonstrated showing a relative risk of 1.5 with low-dose steroids and a relative risk of greater than 8, with doses above 40 mg per day (14). In fact, a single dose of corticosteroids, have shown an increased incidence of influenza infection associated with steroid injection compared to no injection (3). The Advisory Committee on Immunization Practices (ACIP) (15) and the Centers for Disease Control and Prevention (CDC) (16) advised to defer live vaccination at least one month after discontinuation of high-dose systematically absorbed with glucocorticoid therapy administered for 14 days.

With lack of appropriate guidance from authorities, with multiple questions, we have developed this guidance document.

However, what remains to be uncertain is whether or not steroid use around the time of actual vaccine administration would somehow hinder or negatively impact the efficacy of a vaccine.

#### **BEFORE VACCINATION:**

It is recommended by ASIPP that physicians follow the risk mitigation guidance statement put out by ASIPP regarding the use of corticosteroids and completing procedures in the COVID-19 era (3,4,9). This guidance statement stratifies the risk based on comorbidity and potential morbidity mortality related to the virus itself.

1. Based on the available literature and the findings of HPA suppression, it appears that if patients receive local anesthetic only, there are no contraindications.
2. If patients receive short-acting steroids, such as dexamethasone and betamethasone, a 2-week waiting period for vaccination may be appropriate.
3. In reference to long-acting steroids, i.e., methylprednisolone or triamcinolone, of 80 mg or greater, it may be appropriate to wait at least 4 weeks prior to the vaccination to avoid any interference.

#### **AFTER VACCINATION:**

- It is recommended to ***delay interventional pain procedures with steroids*** for two weeks after the second or final dose of the vaccine.
- If this is not possible because several patients may be suffering from severe debilitating pain or pain that negatively impacts their ability to maintain activities of daily living. In these cases, ***we recommend to proceed with the injection at the discretion of the physician and to consider using the local anesthetic only or lowest possible effective dose of short-acting steroids.***
- Patients who ***are healthy and have no comorbidities*** and have received the single dose of the vaccine and are suffering from severe pain which would be amenable to an interventional procedure, and this procedure cannot be delayed, ***may proceed with caution with local anesthetic alone or with short-acting steroids.***

#### **DISCLAIMER:**

These guidelines are based on the best available evidence and do not constitute inflexible treatment recommendations. Due to the changing body of evidence, this document is not intended to be a “standard of care”.

We assume that the physician has weighed the risks and benefits of proceeding with interventional therapy versus delaying the procedure and the physician has decided in conjunction with shared decision-making and decided to proceed within the best interest of the patient and consent.

## REFERENCES

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