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# COVID-19 PANDEMIC AND CHRONIC PAIN MANAGEMENT: IMPACT AND SUGGESTIONS

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## ABSTRACT

Chronic pain is a treatable condition all over the world and causes suffering, limited daily activities and reduced life quality. Pain is at the top, people need medical care, and chronic pain conditions rank 3rd of the top four leading causes of years lost to disability including back pain, general musculoskeletal disorders and neck pain. COVID-19 infection is an ongoing pandemic that causes severe acute respiratory syndrome, resulting in systemic complications and death. The virus is transmitted either through airborne droplets by coughing, sneezing or even respiration or less commonly through direct contact with a surface. The current COVID-19 pandemic has haggard medical resources, creating a dilemma for doctors having a responsibility to limit spread of the infection, and their responsibility to treat the patients who need an urgent care and life saving therapeutic interventions. Pain treatment clinics and centers have closed their doors all over the world. Elective, routine, and non-emergency chronic pain management procedures/services have been stopped in secondary and tertiary centers. The chronic pain patient's care has been significantly at risk. Many of these patients have intricate needs and require interventions urgently to avoid potentially life-threatening complications. These patients have higher chances of anxiety, depression, catastrophising, and suicidal attempts. It is imperative these issues are addressed during a pandemic and this is best achieved by using a biopsychicsocial model of pain management. Important considerations that need to be recognized during this pandemic for chronic pain patients include ensuring continuity of care.

**Keywords**: COVID-19 infection, Chronic pain management, Pandemic.



## INTRODUCTION

Chronic pain is a treatable condition all over the world and causes suffering, limited daily activities and reducedlife quality. Pain is at the top, people need medical care, and chronic pain conditions rank 3rd of the top four leading causes of years lost to disability including back pain, general musculoskeletal disorders and neck pain[1,2]. In the world, low back painranks in the top ten causes ofdisability, being much higher in industrialized countries[3]. It is almost impossible to estimate the chronic pain burden associated with much of personal and socioeconomic costs. Chronic pain, being the leading cause of disability worldwide, is associated with multiple psychiatric co-morbidities, and has beenlinked for the opioid crisis. It is a fundamental human rightto accesspain treatment as described by numerous organizations. The improper treatment of pain has been associated with the opioid crisis, and chronic pain intensity has been linked with increased mortality rates in cancer patients, changes in the structure and function of the brain, poverty, and decreased life expectancy when controlling for other factors[4].

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### COVID-19 Infection

COVID-19 infection is an ongoing pandemic that causes severe acute respiratory syndrome, resulting in systemic complications and death. The inception of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; previously provisionally named 2019 novel coronavirus or 2019-nCoV) disease (COVID-19) in China at the end of 2019 has resulted in large global outbreak and is a major public health issue[5]. COVID-19 is caused by SARS-CoV-2 (severe acute respiratory

syndrome corona virus 2) and is related to the corona virus which caused SARS in 2003. The virus is transmitted either through airborne droplets by coughing, sneezing or even respiration or less commonly through directcontactwith a surface, including medical equipment such as a pulse oximeter or nasal cannula, containing the virus. It has a mean incubation period offour to seven days (range 2 days to >2 weeks)[5,6]. The latest data indicate that the virus is shed from the nasopharynx for an average of 20 days (range 8-37 days) after the onset of illness[7]. Now a days, the primary intervention used tocontrol the infection is to prevent the spread of SARS-CoV-2. Public health authorities mustmonitor the situation closely, as the more we can learn about this novel virus and its associated outbreak, the better we can respond[5].

**General Impact of Covid-19**

The current COVID-19 pandemic has haggard medical resources, creating a dilemma for doctors having a responsibility to limit spread of the infection, and their responsibility to treat the patients who need an urgent care and life saving therapeutic interventions. It also create a conundrum for patients, pain medicine practitioners, hospital administrators, and regulatory authorities.

Pain specialists also have a professional responsibility to care for their own health and those of non-physician healthcare providers involved in the care of pain and other patients, including preventing the spread of infectious disease. Balancing patient rights, the societal benefits inherent in the treatment of pain, the public health of our community, and the welfare of healthcare providers is critically important during times of crisis, including pandemics.

**Specific Impact of Covid-19**

Novel COVID-19 infection can cause severe acute respiratory syndrome (SARS) and death. It is accountable for the ongoing pandemic and on 14 April 2020 there were 19,24,878 confirmed cases with 119,766 deaths globally (https://coronavirus.jhu.edu/map.html).

COVID-19 pandemic has pushed healthcare providers to quickly change their care delivery to protect patients and staff from infection, and to redirect all available resource towards the greatest acute needs. According to the World Health Organization regulations, healthcare authorities all over the world are trying to limit the spread of infection by postponing or cancelling all elective surgical operations, therapeutic interventions and patient visits, including pain management services. Pain treatment clinics and centres have closed their doors all over the world. Elective, routine, and non-emergency chronic pain management procedures/services have been stopped in secondary and tertiary centres, while in primary care, patients are advised to stay away or 'socially distance' and in in-door facility hospitals, strict isolation and separation protocols have been implemented.

This has put the care of chronic pain patients at risk. Most are elderly with multiple comorbidities having a risk of COVID-19 infection. Chronic pain patients often having co-existing diseases. In a large cross-sectionalstudy, pain was the most common co-existing condition among coronary artery disease; diabetes; cancer; and chronic obstructive pulmonary disease[8]. Most of the people with chronic pain who are devoid of assessment and treatment results in worsening oftheir conditionsignificantly and spontaneous recovery is rare. People waiting for pain management often report severe levels of pain that interfere with their functional ability. Severe untreated pain is associated with more severe levels of depression and suicidal thinking[9].

Thechronic pain patient's care has been significantly at risk. Many of these patients have intricate needs and require interventions urgently to avoid potentially life-threatening complications. These patients have higher chances of anxiety, depression, catastrophising, and suicidal attempts[10]. This may worsen during a crisis period. They also experience social isolation, stigma, loss of personal identity, and financial stress. All these factors have anegative impact on psychological health, social circumstances, and

ongoing pain, which may result in exacerbation during a pandemic.

Pain and the immune system are in a close relationship. Chronic pain exerts multiple effects on the immune system, including immuno-suppression in some patients[11]. Immune cells and their activated products have a key role in both inflammatory and neuropathic pain[12]. Significant changes immune system occur in patients infected with COVID-19[13]. It results inhigher risk of mortality noted in the elderly and patients with hypertension, diabetes, coronary artery disease and chronic lung disease[14]. Although the mortality risk is not clear in cancer patients, higher risk has been documented in early reports[15]. The combination of co-existing diseases, old age and chronic pain puts the patients at greatrisk of immunosuppression which may results in COVID-19 infection. There are serious adverse effects of Opioids on endocrine system and has apotential ofimmunosuppresion by interfering with the innate and acquired immune response of the body[16]. Opioidsact on the endo-crine system through hypothalamic-pituitary-adrenal axis and the autonomic nervous system[17]. However some beneficial effects are also docu-mented. Individual opioids differ in their effect on the immune system but morphine and fentanyl have been observed to be the most immunosuppressive[16].

Higher therapeutic doses and longer therapy result in greater endocrine abnormalities[18]. For immunocompromised and elderly patients who are prone to infection, buprenorphine appears to be the safest to treat chronic pain conditions[19]. The clinical relation of these observations for individual opioids is not clear. There are chances of increase in incidence and severity of infections in patients taking opioids as indicated in many observational studies[20]. It can be considered that chronic pain patients taking opioids may be more susceptible to COVID-19 and other secondary infections andrespiratory depression is higher in patients using fentanyl patches because fever enhances absorption[21].

Chronic pain patients are oftenly on oral or injectable steroids for a large variety of musculo-skeletal conditions[22]. There is a risk of secondary adrenal insufficiency and an altered immune response in patients taking steroids[23]. Thay are also at a great risk of many other adverse effects including myopathy and osteoporosis[24]. The depo-methylprednisolone is most frequently used for chronic pain among available steroids. 80mg methylprednisolone can cause Secondary adrenal insufficiency which canlast up to four weeks, ranging from four weeks up to two months[25]. Dexamethasone and betamethasone can cause small duration of immunosuppression as compared to other steroids when used as epidural injections[26]. In a large retrospective study, the intra-articular corticosteroids injections were shown to be associated with a higher risk of influenza[27]. As there is an exaggerated immune response in COVID-19 infection, useof steroid in COVID-19 patients is only recommended inre-fractory shock and this is based on a poor evi-dence[28]. Large joints arthralgiaswere commonly observed during the recovery phase of SARS pandemic in 2003 and many patients were on steroid therapy[29]. Osteonecrosis has been repor-ted in all those patients receiving higher doses and for longer treatment durations[30].

A large number of chronic pain patients use non-steroidal anti-inflammatory drugs (NSAIDS) for their pain relief. Non-steroidal anti-inflamma-tory drugs exert their analgesic effect primarily through peripheral prostaglandin synthesis inhibition through cyclo-oxygenase enzyme, although there are other peripheral and central mechanisms of analgesic action as well. Emerging evidence highlighted that sepsis and cardio-respiratory complications are the most serious complications of covid-19, mostly effecting the elderly people and those with co-existing morbidities[31]. Long term use of NSAIDs such as ibuprofen, diclofenac and naproxenhas resulted in higher chances of cardiovascular complications such as myocardial infarction, heart failure, and stroke which are already associated with acute respiratory tract infection[32,33]. Nephrotoxicity

caused by NSAIDs can be exacerbated by fever and dehydration caused by Covid-19 infection[34]. Higher chances of post respiratory tract infections complications such as pneumonia, pleural effusions, prolonged illness, peritonsillar abscess and suppuration were suggested in a recent review of case-control studies[35]. Prescription of effective antibiotics may be delayed in patients taking NSAIDs[35]. Regular NSAID use should probably not be recommended as the first line option for managing the symptoms of Covid-19.

**Practical Suggestions**

It is imperative these issues are addressed during a pandemic and this is best achieved by using a biopsychosocial model of pain management. Important considerations that need to be recognized during this pandemic for chronic pain patients include ensuring continuity of care and pain medications, especially opioids, telemedicine, maintaining biopsychosocial management, use of anti-inflammatory drugs, use of steroids and prioritizing necessary procedural visits. Here are some suggestions for local regulating authorities for formulating SOPs for pain management interventions during these kinds of pandemics. Categorize pain procedures as elective, urgent and emergent.

For emergency visits, patients and personnel are screened for symptoms of COVID-19. Individuals with a high risk of having COVID-19 should potentially undergo diagnostic testing prior to in-person visits.Clinical settings must adhere to physical distancing recommendations and other regulations. Physicians continue to provide medical services in a safe and effective way via telehealth that, includes interactive audio-video platforms.

Multidisciplinary pain self-management programs and strategies for self-management of pain can be delivered online. Appropriate opioid selection, dosage, duration, follow-up and discontinuation and assessment of risks and harms of opioid use. Only specific semi-urgent procedures should be performed. Whenever possible, online self-management programmes that integrate components of exercise, sleep hygiene, pacing and healthy lifestyle should be considered.

Ensure all patients receive their appropriate prescription of opioids to avoid withdrawal. Avoid insertion of any new ITP except for highly selected cancer pain cases where the benefit is outweigh the risk. Follow the organizational procedure safety guidelines strictly during any urgent pain procedure as medical organizations have emphasized the importance of personal protective equipment (PPE). Only the experienced person should carry out all procedures. These procedures do not lead to aerosol generation. Additional protection for consideration may be made on a case-to-case basis depending upon local availability. Equipment such as the ultrasound machine and intrathecal (ITP) equipment or programmer, should be protected from contamination using an appropriate cover.

Ensure that the needed medications (for example ITP refill) and equipment are ready and transported in a fully covered plastic bags handled with sterile gloves in a clean area.

## CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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