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PAIN MANAGEMENT OF COVID-19 INFECTED PATIENTS AFTER THE VACCINATION: A PROSPECTIVE STUDY

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ABSTRACT **Background:** COVID-19 is a severe infectious disease (SID) claimed that >180,000 lives are infected millions in the elderly population globally. Emerging evidences we observed that virus to cause hemorrhagic and immunologic responses impact in all the organs, including lungs, kidneys, eye , the brain, and extremities as well as. **Material and Methods:** We had performed with prospectively of >1,500 articles and included 525 references from our online databases, including with the Scopus, PubMed, Medline, Google Scholar, and the wave of Sciences. COVID-19 patients are also going through the acute respiratory distress syndrome (ARDS), cytokine storm (CS), acute hypercoagulable state (AHCS), and the autonomic dysfunction (ADF) managed by the multidisciplinary team approach. This is including with Physical medicine rehabilitation, medicine, nursing, nutrition, and rehabilitation and the other important radiological findings. **Results:** A total no of 30 vaccines under the developmental process (DP), and now newly developed with their guidelines for the better treatment strategies and newly developed protocols are being well implemented. The majority of 80-95% of elderly population those are suffering from neurological diseases (ND-90-95%), Alzheimer's disease (AD-85%, Parkinsonism Diseases (PD-95%) and dementia (D-80%) related illnesses noticed that they are at higher risk during COVID-19 pandemic. The future management for COVID-19 should include B-cell and T-cell immunotherapy in combination with all the emerging prophylaxis is also more helpful. **CONCLUSION:** The pain management in the neurological disorders (ND) including with all the mental health with several illness aspects of the COVID-19 is the most important side effects of during the pandemic. Hence the national level and International level plan for prevention, diagnosis and treatment for SARS-CoV-2 also affects patients', families', society's neurological disorders (ND), Alzheimer's disease (AD), Parkinsonism Diseases (PD), Dementia Diseases (DD), and the other mental health patients at larger in population. Now growing evidence of re-infection in some neurological disorders (ND) patients is to provide a comprehensive knowledge of SARS-CoV-2-induced with neurological diseases (NDs) and their mechanism of infection (MOI), diagnostics, therapeutics, and their new treatment strategies, focusing with less attended aspects including with the nutritional support, psychological, and physical medicine and rehabilitation and its management are essential for elders, youth, and children.

KEYWORDS : Future management for COVID-19, B-cell and T-cell immunotherapy, Combination with emerging prophylaxis, Physical medicine and Rehabilitation, Policy/Guideline development

INTRODUCTION

The COVID-19 vaccinated patients with the healthcare and economic weaknesses including with other related burdens are also noticed now a day's [1]. COVID-19 also equally exacerbated with neurological disorders, mental health issues are highly exposing population including with prolonged periods of fear, anxiety, financial stress, psychological uncertainties. This is due to isolation from family and friends with neurological complicacy and so many social aspects of miscommunications [2]. The Chronic pain (CP) of these patients has been affected globally more than 90-95% of population. The pandemic-associated stresses (PASs) have exacerbated with their painful symptoms. Several neurological disorders (SNDs) at the same time are also interrupting with their access into the point of care in the hospital regularly [3].

Although, Vaccinations process and therapeutics have been now developed for COVID-19 vaccine uptake (VU) varies among countries to countries and the public health responses have varied from different regions.Particularly in this period lockdown efforts in the school closing and stopping in the national and the International conferences [4].The ramifications of the COVID-19 post-viral syndrome at long COVID-19 are not discussed till date. So the COVID-19 viral infection has been associated with neuropathic pain symptoms (NPPSs) in the World [5]. The Tele-triage and telehealth applications are also helping into manage the chronic pain (CP) patients with the COVID-19 reinvested patients.

Interventional procedures, injections, drugs, medication in other treatments have been delayed as role of palliative care (PC) for those patients with their terminal cases of reinventions must be re-examined as the routine checkup [6]. Palliative care (PC) is medical specialty and allows terminally ill patients to die in this much comfort and peace afforded to them for early recover. Better training in palliative care (PC) for all the clinicians is to give proper care urgently [7]. COVID-19 exposed that is (wrong, weak, inadequate, ill) in our healthcare systems need to develop further. But it is allowed us to embrace the new technologies to develop into the better systems to manage the challenges in future. Pediatric chronic pain (PCP) affects 25% to 45% among the children [8]. The severity of disability and higher rate of prevalence of mental illness follow (MIF), further complicating treatment including with chronic pain (CP) is also one of the commonest field impacted by the COVID-19 infected patients' treatment are quite delayed [9].

The impact of the COVID-19 pandemic on the evaluation and management of pediatric patients, elderly patients with chronic pain through a biopsychosocial model of care and through the physical medicine and rehabilitation is taking very important role of this session is to draw outline evidence and tools for a psychologically informed approach to treating chronic pain (CP) during COVID-19 [10].This recent findings of the research on biobehavioral treatments like CBT offer resources for healthcare professionals those are working with youth living with pain. Critical elder, youth and children are cut off from social support networks, treatment teams, and typical coping strategies (TCSs) during this pandemic which are suffering with neurological and chronic pain (CP) [11].

MATERIALAND METHODS:

We had performed with >1,500 articles and included 525 references from our online databases, including with the Scopus, PubMed, Medline, Google Scholar, and the wave of Sciences prospectively. COVID-19 patients are also going through the severe acute respiratory distress syndrome (SARDS), cytokine storm (CS), acute hypercoagulable state (AHCS), and the autonomic dysfunction (ADF) managed through the multidisciplinary team approach (MTA). This is including with Physical medicine rehabilitation (PMR), medicine, nursing, nutrition, and rehabilitation and the other important radiological findings. The neurobiology, biopsychosocial model of chronic pain (CP), distinct levels of care (DLOC), effective psychoeducation, treatment modifications and considerations in the

setting of the COVID-19 infected with the elder, child and adolescent psychiatrists with expertise in chronic pain including with radiologists, pain psychologist, a pediatric pain specialist, and a postdoctoral fellow researching chronic pain and help taken from the physical medicine and rehabilitations (PMR).

RESULTS

Our current research confirm that effective pain treatment requires a biopsychosocial approach targeting maladaptive coping behaviors, cognitive processes, emotions, unhealthy family systems, socioeconomic factors, and lifestyle issues like sleep and nutrition more than (90-99%) are associated with the very essential part. Pediatric pain (PP) continues treated primarily and biomedical, with pills and procedures (85%-90%). Pediatric pain (PP) is not being managed in even critically ill patients properly. This is difficult time for children living with pain with COVID-19 has more than cut off from the peers, social support networks, treatment teams, hobbies, education, playing games and out from their normal coping mechanisms. The CBT has been utilized both in virtually and in person evidence of effectiveness for treating with pediatric pain (PP-88-90%).It targets the brain and body, psychology, physiology, to change the chronic pain cycle.There are various affordable biopsychosocial bioresources and newly develop tools rooted in science and research that healthcare providers can offer pediatric patients and their families. The novel corona virus in the pandemic (COVID-19) destroyed the speedy medical ecosystem and has changed profoundly times stretching out its capacity and unable to provide proper healthcare to all those are really in needful. The huge amount of neuro axial corticosteroid injections (NACSIs) are carried out annually 75,000/year. There to carefully evaluate the procedures and requirements involved within these injections to treat more than (90-95%).

DISCUSSION

The Corticosteroid Injections (CSIs) are one of the key component treatments for the musculoskeletal and degenerative conditions (MSDGCs). When injected either to the spinal epidural space in an intra articular manner, CSIs are widely considered as good practice for diagnostic and therapeutic purposes prior to committing to orthopaedic surgery, neurosurgery, and musculoskeletal surgery. CSIs have the specific systemic effects in the two of which are systemic immune depression in both of the innate and adaptive responses in human. HPA axis depression also effects raises the concerns regarding COVID-19 patients and those receiving the vaccination in these systemic process. At the early stages of the pandemic, guidelines were published advising against the use of CSIs and their other associated diseases and their mechanisms.

Recent investigations suggested that CSIs are likely a viable treatment for most of the lower in risk patients with image guided CSIs for pain management were performed during the initial lockdown period of the COVID-19 pandemic. It is suggested that these injections were not associated with the higher infection rate in the general population. CSI may be of even greater use and given as the restricted access to medical services and elective surgical options during the crisis time. The interaction between CSIs and the newly developed COVID-19 vaccine suggested that in immune suppressed individuals and the humoral immune response (HIR) compromised along with causing decreased immune response (DIR) to vaccination at a larger no of population based study. We observed that all those patients who had received the influenza vaccination and underwent joint CSI before or during the influenza season had a higher relative risk ratio in order to manage the risks of the interaction between the steroids and the vaccine. Newly developed of guidelines was recently developed within our Pain Institute, patients are warned of the immunosuppression risks of CSIs and are advised not to receive steroid injections during the 5week period prior beginning 1week prior to the first dose of the vaccine until 1week after the second dose. In addition to the Second dose, in the cases where the patient, after being informed about the risks are insisting with on receiving an injection, dexamethasone is used for the better treatment after the COVID-19 infections. Dexamethasone has also been shown that to have a shorter duration of systemic effect favored over the other steroids in these circumstances.

The 2019 coronavirus disease (COVID-19) a is a global health threat, and is by far the largest outbreak of atypical pneumonia as within weeks of the initial outbreak in China the total number of cases and deaths exceeded those of any previous similar diseases [12]. At the present time COVID-19 is quickly expanding all around the Europe and the word. The governments are ramping up social distancing and isolation measures for general population, with even tighter restrictive measures for people affected by COVID-19. Data recorded just two weeks into the China outbreak of COVID-19 reported that 53.8% of respondents rated the psychological impact of outbreak as moderate or severe; 16.5% of respondents reported moderate to severe depressive symptoms; 28.8% of respondents reported moderate to severe anxiety symptoms, and 8.1% reported moderate to severe stress levels [13].

Chronic pain (CP) patients are at the higher risk for depression, social isolation itself is a risk factor for the development of depressive symptoms (DSs). These guidelines provide us sound advice to physicians performing CSIs as part of their treatment plan.These are highly relevant as a worldwide effort to mass vaccinate come into effect [14].Despite of our growing knowledge about the COVID pandemic experience is not much concern has been focused upon the effective pain management in pediatric patients suffering from this SARS CoV2 virus. Symptoms with pain like myalgia (10%-40%), sore throat (5%-30%), headache (14%-40%) and abdominal pain (10%) are common in children suffering from COVID [15].

We find out that the analgesia for COVID positive pediatric patients in the Cochrane, PubMed, and Google scholar databases were searched for relevant literature/documents.The novel status of this COVID-19 with included randomized controlled trials (RCTs), observational studies, case series and case reports in the descending order of consideration [16]. English, abstract only articles and non-scientific commentaries were excluded. The Primary outcome was evaluation of pain related symptoms and best strategies for their management [17].

Recent investigations have focused on the impact of the virus on the emergency departments and intensive care units (ICUs). Outpatient care has also been fundamentally transformed since the pandemic duration. Hence there is no consensus on the best way to manage patients with severe pain during the COVID-19 pandemic. As the multiple guidelines have been developed regarding staffing, mitigation of risk, increased utilisation of telemedicine and increased opioid prescribing in different direction. Recent publication also demonstrated the altered practice and marked reduction patterns of interventional pain physicians in the United States and our Indian populations.

This pandemic regards the impact of the newly developed vaccines on patient care is of particular relevance due to the recent implementation of mass vaccination programmes in all over the world. The substantial percentage of the COVID-119 patients treated in pain management units are for the elderly population with the systemic co morbidities. According to the epidemiological data the fall into increased risk group for severe illness evidence used to update the list of underlying medical conditions/clinical history that increased person's risk of severe illness from COVID-19.

Additionally the multidisciplinary approach starting from non-pharmacological techniques are like drinking plenty of water, removing triggers like inadequate sleep, specific foods and psychotherapy including distraction, comfort and the cognitive behavioral strategies should be used for them respectfully [18]. Moreover pharmacological approaches like acetaminophen, NSAIDS, spasmolytics can be used if non-pharmacological therapy (NPT) is inadequate [19]. As per the current strength of evidence, acetaminophen and ibuprofen safely administered for pain management in children with COVID-19 undertreated pain is a significant contributor to increased morbidity and the poor prognosis [20]. Integration of evidence based non-pharmacotherapies (IOEBNPTs) are in the multidisciplinary pain management will contribute towards improved functioning, early recovery for the better quality care for pediatric patients suffering from the COVID- 19 patients [21].

Future Prospective: It is obvious that the relationship between chronic pain, COVID-19 related mental disorders (MDs) are affected of social isolation could be dramatic for these patients. Further impairment of their clinical conditions, and quality of life (QOL) is the greatest part of daily chronic pain services (DCPS) activity is considered as non-urgent in hospital resources, including with the physicians and nurses usually employed in CPS are used to face COVID-19 emergency. These activities of CPS become interrupted or reduced to serve as point of reference for the patients. In addition to we also encourage expanding the applications of telehealth and

telemedicine to follow the chonic pain patients (CPPs) at home consider this emergency period as an opportunity to improve the organization of CPS and to learn new skills that will make our care better for the patients and affordable treatment also required. As recent research indicated that youth are living with chronic health conditions (CHCs) are at the higher in the risk of negative mental and physical health consequences are during COVID-19 patients. CBT and biobehavioral approaches are also good evidence of effectiveness and the useful tools for pain management. It can be accessed virtually while families continue to shelter in place and at home.

Limitations:

We must remember that CPS is important for the social support for the patient care that can be helpful. The limitation caused by COVID-19 we think that it is important to keep CPS clinical activity for some selected urgent cases and we need more number of samples for follow-up study.

CONCLUSION:

SARS-CoV-2 also affects patients' families', and society's mental health at larger in number as growing evidence of re-infection in some patients.SARS-CoV-2-induced disease, its mechanism of infection, diagnostics, therapeutics, and treatment strategies, while also focusing on less attended aspects by previous studies, including nutritional support, psychological, radiological and rehabilitation of the pandemic and its management. The COVID-19 pandemic has impacted all sectors of health care and has led to limited access to interdisciplinary therapeutic modalities and elective procedures (EPs).Psychosocial, emotional, and financial stressors and socioeconomically from the pandemic misleads to the exacerbations in chronic pain (CP). The necessary new develop tools to evaluate and treat patients with chronic pain (CP), implement a successful multimodal approach (MMA) in a limited resource setting, and understand how to create better collaborative dialogue with the patients in developing strategies for managing the pain.

REFERENCES

1. Marixa G, Pablo C, Ovelio Q, Maria BC, Antonio NT, Lanfranco V, Martina R, Giustino V. Pain Management and COVID-19: A Latin American Perspective. Cureus. 2022;14(3).
2. Torbey S, Ribeiro MV. Pediatric Chronic Pain Management During COVID-19. Journal of the American Academy of Child and Adolescent Psychiatry. 2021 Oct;60(10):S80.
3. Zoffness R. 55.2 CBT: BIOBEHAVIORAL TOOLS FOR PEDIATRIC PAIN MANAGEMENT DURING COVID-19. Journal of the American Academy of Child and Adolescent Psychiatry. 2021 Oct;60(10):S81.
4. Chang C. Y., Prabhakar A., Staffa S. J., Husseini J. S., Kheterpal A. B., Simeone F. J., & Bredella M. A. Symptomatic COVID□19 infections in outpatient image□guided corticosteroid injection patients during the lockdown phase. Skeletal Radiology, 2, 1–7. 10.
5. Evidence used to update the list of underlying medical conditions that increase a person's risk of severe illness from COVID□19. https://www.cdc.gov/ coronavirus/2019□ncov/ need□extra□precautions/evidence□table.html
6. Joyce A. A., Conger A., McCormick Z. L., Kendall R. W., Wagner G., Teramoto M., & Cushman D. M. (2020). Changes in interventional pain physician decision□making, practice patterns, and mental health during the early phase of the SARS□CoV□2 global pandemic. Pain Medicine, 21(12), 3585–3595.
7. McKean D., Chung S. L., Fairhead R. et al Corticosteroid injections during the COVID□19 pandemic: Experience from a UK centre. Bone & Joint Open. 2020;1(9):605–611.
8. Miller D. C., Patel J., Gill J. et al (2020). Corticosteroid injections and COVID□19 infection risk. Pain Management, 21(8), 1703–1706.
9. Sytsma T. T., Greenlund L. K., & Greenlund L. S. (2018). Joint corticosteroid injection associated with increased influenza risk. Mayo Clinic Proceedings: Innovations, Quality & Outcomes, 2(2), 194–198.
10. Brill S, Hochberg U, Goor□Aryeh I. Neuro□axial steroid injection in pain management and COVID□19 vaccine. European Journal of Pain (London, England). 2021 Apr;25(4):945.
11. Mishra P, Tomar A, Kumar A, Nath A, Sharma SK, Singh GK. Pain management in COVID-19 pediatric patients—An evidence-based review. Saudi Journal of Anaesthesia. 2021 Jan;15(1):33.
12. Wang C. A novel coronavirus outbreak of global health concern. Lancet. 2020;395:470–473.
13. Wang C., Pan R., Wan X. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health. 2020;17:1729.
14. Bruce ML, Hoff RA. Social and physical health risk factors for first-onset major depressive disorder in a community sample. Social psychiatry and psychiatric epidemiology. 1994 Jul;29(4):165-71.
15. Piraccini E, Byrne H, Taddei S. Chronic pain management in COVID-19 era. Journal of clinical anesthesia. 2020 Oct;65:109852.
16. Mishra P, Tomar A, Kumar A, Nath A, Sharma SK, Singh GK. Pain management in COVID-19 pediatric patients—An evidence-based review. Saudi Journal of Anaesthesia. 2021 Jan;15(1):33.
17. Achterberg WP, Pieper MJ, van Dalen-Kok AH, De Waal MW, Husebo BS, Lautenbacher S, Kunz M, Scherder EJ, Corbett A. Pain management in patients with dementia. Clinical interventions in aging. 2013;8:1471.
18. Nicholl BI, Sandal LF, Stochkendahl MJ, McCallum M, Suresh N, Vasseljen O, Hartvigsen J, Mork PJ, Kjaer P, Søgaard K, Mair FS. Digital support interventions for the self-management of low back pain: a systematic review. Journal of medical Internet research. 2017 May 26;19(5):e7290.
19. Riemma G, Schiattarella A, Colacurci N, Vitale SG, Cianci S, Cianci A, De Franciscis P. Pharmacological and non-pharmacological pain relief for office hysteroscopy: an up-to-date review. Climacteric. 2020 Jul 3;23(4):376-83.
20. Hyland SJ, Brockhaus KK, Vincent WR, Spence NZ, Lucki MM, Howkins MJ, Cleary RK. Perioperative pain management and opioid stewardship: a practical guide. InHealthcare 2021 Mar 16 (Vol. 9, No. 3, p. 333). MDPI.
21. Ninot G. Non-pharmacological Interventions. New York: Springer; 2020.