



Covid Associated Myopathy and Critical Illness Neuropathy: Mini Review

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The Novel Coronavirus 2019 which is more commonly called the COVID-19 infection was declared as a pandemic in March 2020. The entire world is grief stricken and battling this pandemic has become the primal focus for all. Coronavirus is notorious and continuously mutating with hidden symptoms and fewer known post covid-19 sequelae.

Covid-19 infection is not just about fighting the illness and developing immunity against the virus. It also involves dealing with its complications, the most common one being Acute hypoxemic respiratory failure—sometimes with severe hypercapnia—from acute respiratory distress syndrome (ARDS) (in 60–70% of patients admitted to the ICU), followed by shock (30%), myocardial dysfunction (20–30%), and acute kidney injury (10–30%) (1, 2, 3, 4)

As more focus is being put in this regard, it has come to light that patient who have suffered a severe illness have resulted in critical illness and longer ICU stay. Such individuals have shown neuromuscular symptoms and have been more prone to develop CIN/CIM. Critically ill patients with COVID-19 are older and have more comorbidities, including hypertension and diabetes, than do non-critically ill patients.

(4,5) There are a lot of risk factors associated with CIN/CIM including muscle inactivity, hyperglycaemia, use of corticosteroids, sedatives and neuromuscular blockers and multiple organ failure. (6)

Critical illness myopathy (CIM) has emerged due to ICU associated weakness of the limbs where the patient is on prolonged mechanical ventilation (especially more than 2 weeks) and has flaccid limbs due to muscle relaxants & high sedation. (7, 8) As these patients do not have an early wean off from the ventilator, they are very likely to develop myopathy and in severe cases develop muscle atrophy and have long term effects of the same.

Critical illness neuropathy (CIN) can be attributed to either the neurotropic nature of the virus- where the virus directly attacks the nerves, as a complication of severe illness & ICU admission- prolonged analgesia and anaesthesia or the post viral sequelae. Acute inflammatory polyneuropathy, e.g., Guillain-Barre syndrome (GBS), has been seen in 19 COVID-19 patients all over the world. (9)

In the recovery phase, CIN and CIM show a stark contrast. In CIM, the patients show recovery by 6 months whereas in CIN the patients showed delayed or incomplete recovery with a higher mortality. (10)

CIN and CIM are important to identify, since the patients almost always present with severe residual disability and persistent limitations, even after several years. (11,12,13) To prevent this, a two-pronged approach can be fruitful where (i)the high-risk patients are identified and monitored (ii) Electromyography and Nerve conduction studies are done for distinguishing the two, early diagnosis and management. (14) Once diagnosed, early intervention is needed to reduce the burden of these complications and immediate rehabilitative steps must be taken.

Conclusion

Overall, due to prolonged ICU care and use of anaesthetic and analgesic agents, long-term complications are arising which need to be nipped in the bud by early detection and intervention for the Covid-19 survivors by providing them regular physiotherapy and to take their nutrition requirements in to account by providing enough protein in diet for CIM and high dose multivitamins especially the B complex for the prevention of CIN.

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