International Journal of Medical Studies
Available online at www.ijmsonline.in

IJMS 6(2), 32-34 (2021)
Print ISSN 2542-2766

Letter to the Editor

SARS-CoV-2 associated muscle damage can be diverse

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Article history
Received 11 Feb 2021
Received in revised form 21 Feb 2021
Accepted 24 Feb 2021
Available online 28 Feb 2021

Keywords: Myopathy, Creatine-Kinase, Myoglobin, Skeletal Muscle, Weakness

This article reviewed by Dr. Prateek, Dr. Ram. Edited by Dr. Pradeep J., Dr. S Gaur. Available online 28 Feb 2021.

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The first shortcoming of the interesting article by Manzano et al. refers to the missing ultrastructural investigation of the muscle biopsy [1]. In a recent study electron microscopy of a COVID-19 patient's biopsy revealed degenerated cells with cytoplasmic condensation, degenerated mitochondria, and cytoplasmic clusters of SARS-CoV-2 particles [2]. Missing are nerve-conduction studies and needle-electromyography to rule out neuropathy, increasingly recognised to complicate COVID-19 [3], with secondary myopathic lesions. Absence of skin lesions do not rule out dermatomyositis, increasingly recognised as a feature of COVID-19 [4]. Since some of the drugs given to treat COVID-19 are myotoxic (steroids, chloroquine,

azithromycin), muscle damage due to side effects of these drugs need to be excluded. Missing is the family history and the clinical neurologic exam to rule out a sub-clinically hereditary neuromuscular disorder, which became symptomatic through the infection. We should know the myoglobin levels and which drugs were given prior to admission for muscle weakness, myalgia, and fever to rule out rhabdomyolysis. The systemic inflammatory response, substantiated by elevated cytokine levels [5], should be excluded as the cause of the described cytopathy.

FUNDING SOURCE

No funding was received.

USEFUL INFO

Author contribution: JF: design, literature search, discussion, first draft, critical comments.

Informed consent: was obtained.

The study was approved by the institutional review board.

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