

Metabolic Support for Elderly, Severe COVID-19 Patients With Acute Respiratory Failure: A Case Series

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Objectives: Severe COVID-19 (SvC19) is a syndrome of acute lung injury, respiratory failure, cytokine storm, distributive shock, multi-system organ failure and high mortality. SvC19 disproportionately impacts the elderly, who are also at risk for micronutrient deficiency. After observing a beneficial response to micronutrient repletion (MR) in a 69 year-old male with SvC19, we hypothesized that nutritional deficiencies were linked to the pathogenesis and that correcting them could be beneficial. In this report we detail a case series of 18 older patients with SvC19 treated with MR.

Methods: All patients had SvC19 requiring mechanical ventilation, elevated levels of CRP, D-dimer and neutrophil to lymphocyte ratio. MR consisted of daily parenteral ascorbate, thiamine, pyridoxine and multivitamins, as well as daily ergocalciferol, zinc and carnitine via nasogastric tube.

Results: The average age was 63.3 years. Six patients were male, 12 female. Disease severity was comparable based on SOFA score. A partial response was observed in 10 of the 18 patients (55.5%). Six (33.3%) were able to wean off blood pressure support. Five (27.7%) had improvement in gas exchange. Four (22.2) were able to wean off ventilator support. Three patients (37.5%) showed improvement in renal dysfunction.

Conclusions: MR shows potential promise as an adjunctive treatment for severe COVID-19, particularly in older patients or those with chronic illness in whom nutritional deficiencies are more probable.

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