We thank reviewer #1 on his timely peer review and his very pertinent and important comments which we address below.

Reviewer comment # 1. When we talk about microorganism infection, we need to take the human host immunity response into account. The human immune system emerged to manage the microorganisms inside and around human body for nutrition and against possible damage made by those microorganisms [1]. Because of the immune reactions like phagocytosis and xenophagy, most infectious diseases caused by viruses (like this SARS-COV-2 virus) or bacteria are self-limiting [2-4]. This is why most of the COVID-19 cases are asymptomatic or mild [3, 4].

We are in complete agreement that in patients with severe Covid-19 disease the virulence of SARs Cov-2 infection is driven mainly by aberrant host response . We have inserted the following paragraphs:

In many infections, it is not the pathogen that determines the virulence of the disease. Instead, it is the host response to the pathogen that causes tissue injury, delayed healing, morbidity, and mortality.[1–3] Covid associated respiratory failure is a host response hyper-inflammatory pulmonary disease driven by macrophages and hyper-cytokinemia.[4–6] Of note, most patients with SARs-Cov-2 infection are mild or completely asymptomatic, with only a minority progressing to severe illness.[4] In the setting of mild or asymptomatic disease, there is an appropriate release of antiviral interferons, clearance of viral particles, viral debris by phagocytosis, and a controlled innate immune response followed by the development of adaptive immunity.[4,6,7] However, there is an impaired release of interferons and an abnormal innate immune response associated with excessive hyper-inflammatory response in the small subset of patients progressing to severe disease.[7] Although SARs-Cov-2 viral cytopathic effect on the epithelial cells of the respiratory tract has been demonstrated, investigators have found it challenging to retrieve live virus during the severe symptomatic pulmonary phase of the disease despite clinical evidence of tissue injury and damage.[8] The positive response of anti-inflammatory and immunomodulatory agents in severe SARs-Cov-2 infection underscores the dysregulated hyper-inflammatory host response responsible for the tissue damage and virulence of severe Covid-19.

Most part of the virulence of an infectious disease is actually the result of the inflammation response of our immune system [2, 4]. And nutrition disorder might be the main cause of hyper inflammation in severe cases of COVID-19. 3) Inflammation is the immune response to tissue damage [5]. It is initially protective for the removal of the injurious stimuli and damaged tissues as well as the initiation of tissue healing [5]. Yet, nutrition excess will disturb the tissue healing process. This is because, the nutrition from the degradation of the viruses and the damaged tissue together with the excessive nutrition already existed inside the body will be mostly turned into lipid intermediates and be deposited in healthy non-

adipose tissues, causing lipotoxicity [9] and further tissue damage. Thus, over-nutrition will lead to a vicious cycle of excessive lean mass (like protein) broken down and lipid

intermediates piling up, fuel excessive inflammation and lead to cytokine storm.

We thank the reviewer for his insight and comments. To this effect we have added the following paragraphs

Although the present study body mass index (BMI) did not significantly correlate with mortality and elevated BMI, hyper nutrition (sarcopenic obesity) is a known risk factor for developing severe Covid-19 disease and mortality.[9] Due to increased expression of the ACE2 receptor, adipose tissue is a target for SARs-Cov2 infection, adipose tissue function as an endocrine organ which results in a pro-inflammatory state, activation of NOD-, LRR-, and pyrin domain-containing protein 3 (NLRP3)inflammasome and release of pro-inflammatory cytokines.[10–13] In addition, increase adipose tissue increases circulating TNF-α and IL-6.[11] Furthermore, obesity is associated with Cd4 T cell exhaustion and decreases in anti-inflammatory cytokines IL-10 and IL4.[11,14,15] Thus hyper nutrition obesity sarcopenic patients are at higher risk for acquiring infection and developing the inflammatory immune dysregulation observed in severe Covid-19 disease.[11,15]

Unfortunately, the current study did not investigate the presence gastrointestinal(GI) manifestation of severe Covid-19 disease. Further studies are needed to explore the possible organ crosstalk between the pulmonary and GI systems as the GI tract is both a driver of inflammation and a potential infectious source.[16]

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