International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

EDITORIAL

Concerns on Obesity during COVID-19 Pandemic

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ARTICLE INFO

Keywords:
Obesity
COVID-19
Pandemic
Management

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Received: June 21, 2021
Revised: July 29, 2021
Accepted: August 8, 2021

Please cite this article as: Mehrdad M, Eftekhari MH. Concerns on Obesity during COVID-19 Pandemic. Int J Nutr Sci. 2021;6(3):111-112. doi: 10.30476/IJNS.2021.90311.1125.

DEAR EDITOR

The COVID-19 pandemic has become the most challenging health concern worldwide in the current century. Due to the lack of a definite treatment for the disease, health authorities had to decide on recommending social distancing to help the health system and decrease deaths. Moreover, the world is attempting to discover the virus and natural immunity and to develop vaccines. Thus within the last months, a number of highly hopeful COVID-19 vaccines were rapidly developed and are now being set up for immunization via approval of emergency use (1). However, a spontaneous concern is rising, so that obesity and its comorbidities have been correlated to COVID-19 susceptibility and mortality. We know the outcomes of patients affected by *Corona virus* can be exacerbated and develop acute respiratory failure and other serious complications, especially in older individuals and those with obesity (2).

As also previously observed, adiposity was identified as a risk factor for increased severity of viral disease and the rate of mortality in individuals infected by *Influenza A virus* subtype H1N1 (3). However, the underlying mechanisms of such correlations require a fully understanding (4). Besides, several factors including central obesity, higher body mass index (BMI), and associated co-morbidities have been reported to be correlated with reduced immunization responses to the vaccines. Higher BMI in individuals with obesity is associated with greater non-responsiveness of vaccines including hepatitis B vaccine (5). Although, researchers are still uncertain whether or not obesity will affect COVID-19 vaccine efficacy, there is a growing concern in this regard (6).

Since then, a new study addressed higher complications of the disease and lower responsiveness to COVID-19 vaccines in individuals with obesity (7). Another study addressed the role of central obesity and associated co-morbidities in lowering antibody (Ab) titers following COVID-19 vaccination (5). Given the current situation, obesity and weight loss have become a complicated challenge during COVID-19 pandemic. On one hand, obesity impairs immunity and weakens the response to microbes including viruses and exacerbates the complications and even causes higher rate of mortality, and on the other hand, some weight loss methods could impair defense systems of the body, especially those immune aspects responsible for fighting to viruses. As several studies claimed that weight loss through

various methods including bariatric surgery, calorie-restricted diet even plus moderate physical activity, vigorous physical activity and also using anti-obesity drugs can make the body more prone to viral diseases as a consequence of decline in natural killer cells (NKCs), which are responsible for viral defense, or other impairment in immune markers (8, 9).

As well, some other studies revealed that weight can reactivate the decreased function of NKCs and can recover the impaired immunity due to obesity loss through balanced diets or moderate physical activity and life style changes (10). Therefore, there are three points to be addressed; firstly, the clinicians should make more awareness on importance of true weight loss through evidence-based methods during the pandemic to better manage obesity and the subsequent impaired immunity. Secondly, the researchers should consider immune aspects in the studies conducting on obesity and weight management programs. Third, individuals with obesity, especially those with central obesity and associated co-morbidities could benefit from earlier vaccine boosters or different vaccine schedules (5). Hence, advices on vaccine should be more precisely explained in details for those with obesity.

Acknowledgment

The authors declare that no funding was received for this editorial.

Conflict of Interest

None declared.

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