

OBESITY in COVID-19

Short Communication

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A few months ago, in December 2019, a new severe acute respiratory syndrome was discovered, the SARS-CoV-2 coronavirus, an outbreak had occurred in Wuhan, China [1]. On March 13, 2020, the World Health Organization declared SARS-CoV-2 as a pandemic. Coronavirus disease, or COVID-19, can range from mild flu-like symptoms to severe such as acute respiratory distress syndrome and death [2] Different comorbidities present in patients with COVID-19 have been associated with increased risk of hospitalization, such as: arterial hypertension, diabetes mellitus, heart disease, chronic kidney disease, obesity [3, 4] and others that can contribute to greater mortality and morbidity [5].

Obesity is a chronic disease, of complex causal origin, of multifactorial etiology, where genetic, social and environmental factors interact; It is characterized by an increase in body fat deposits and as a consequence weight gain, caused by a positive energy balance, occurs when food intake exceeds energy expenditure and the excess is stored as fat in the body organism [6].

There are various biological mechanisms that affect these types of patients, one of them is chronic inflammation, caused by excess fat pad and can further exacerbate inflammation, exposing them to higher levels of circulating inflammatory molecules compared to non-patients. Obese [7] Vitamin D deficiency is another factor, increasing the risk of systemic infections and impairing the immune response [8] Intestinal dysbiosis, involved in the risk of developing severe forms of COVID-19. Obesity is associated

with a weakened composition of the intestinal microbiota, which in turn is essential for the regulation of the host's immune system and for protection against infection [9]. Complications requiring intubation, diagnostic imaging, or transportation [10].

Richardson S, et al, reported in a series of cases in 5700 hospitalized patients with Covid-19 in New York, a prevalence of obesity of 41.7% [11]. The risk associated with obesity may be particularly relevant in the United States. In the USA, because in general the prevalence of obesity is approximately 40%, compared to a prevalence of 6.2% in China, 20% in Italy and 24% in Spain [12]. In Mexico, 75.2% of the population develops overweight and / or obesity, one of the highest prevalence's worldwide [13].

As this pandemic progresses, obesity has been associated with COVID-19 [14]. Simonnet A. et al [15] concluded that hospitalized patients with COVID-19 with obesity (BMI \geq 35) require invasive mechanical ventilation more frequently compared to non-obese patients.

Petrilli CM et al, [16] significantly associated obesity (40%) with the need for hospitalization and the critical condition of the patients (intensive care, mechanical ventilation and/or death), independently of other comorbidities. Another British study confirms that obesity is associated with an elevated risk of dying from COVID-19 [17]. Lin WY et al [18] dictate a decrease in respiratory reserve volume, decreased functional capacity, and poor lung compliance. Obese patients are at higher risk, more

likely to develop severe disease (OR 3.40; 95% CI: 1.40 to 2.86. [19] Lighter J. et al [20] in the United Kingdom, showed in their series in patients with Covid-19 children under 60 years of age with a BMI of 30-35 kg/m₂ and more than 35 kg/m₂ were 1.8 and 3.6 times more likely to be admitted to the ICU, respectively, compared to those with a BMI<30 kg/m₂. 38% of the patients admitted to the ICU associated with Covid-19 were obese [21].

Jiahui Hu et al [22] in a systematic review and meta-analysis, found that obesity could exacerbate COVID-19. Obesity could be a risk factor associated with high mortality in young COVID-19 patients [23].

In Mexico, with a total of 32,583 patients (12,304 cases and 20,279 controls, obesity represents the strongest predictor of Covid-19 followed by diabetes mellitus and hypertension in both sexes and chronic kidney failure only in women [24] Also in Mexico, in 87,372 tests performed, the average age of the patients was 46. Of the 12,656 confirmed cases, the highest number of infected occurs in the age range between 30 and 59 years (65.85%), and there was a higher incidence in men (58.18%), the deceased patients had multiple comorbidities, mainly hypertension (45.53%), diabetes (39.39%) and obesity (30.4%) [25].

Bello Ch. Et al, concluded that obese patients had higher ICU admission rates (Comparing patients with and without obesity, 5.0%vs3.3%) and were more likely to be intubated (Comparison of patients with and without obesity, 5.2%vs3.3%) [26].

We must consider the magnitude and relevance of obesity during the COVID-19 pandemic; despite the fact that obesity is caused by the interaction of multiple factors, both genetic, environmental, metabolic and behavioral, in today's society the perception persists that it is due to a lack of will to follow a healthy diet and exercise [27].

In the current COVID-19 pandemic, physicians must recognize that obese patients, and especially those with a higher degree of obesity, have a greater risk of clinical deterioration, as such, patients must be carefully monitored to reduce morbidity and mortality [28].

As a result, people with obesity experience pervasive and resistant stigma, which interferes with their social and professional interactions, including their interactions with healthcare personnel [29].

Understanding the role of obesity in COVID-19 should be a public health priority, given the high prevalence of

this condition in our country, both the general population and health agencies must be responsible and invest in our health, One of the possible causes that Mexico is among the first places of mortality due to COVID 19 is obesity.

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