History of Medicine, 2023, 9(1): 1782–1785
DOI: 10.17720/2409-5834.v9.1.2023.228

Consumption of Sugar and COVID-19 severity

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Received: 20 January 2023 **Accepted:** 15 April 2023

Citation: Aldujaili HH, Al-Baka HAA, Alquraishy MK (2023) Consumption of Sugar and COVID-19 severity. History of Medicine 9(1): 1782−1785. https://doi.org/10.17720/2409-5834.v9.1.2023.228

Abstract

It is well established that consuming table sugar in large quantities causes negative effects on human health and on his immune system. In this study we intended to show the severity of COVID-19 among the patients who used to consume excessive quantities of sugar. We compared them with people satisfy with eating small or moderate amounts. The results revealed that the infection is always more severe among the individuals who intake large quantities of sugar, the percentage of those who are forced to intensive care units is higher, and the number of deaths is greater. These results were embodied among men and women.

Keywords

COVID-19, sugar.

All parts of our nervous system use sugar as primary source to get the energy to be able to carry out their daily activities [1]. In adults the brain consumes nearly 140 grams of glucose per day. A meal of carbohydrate enhance attention, memory, in addition to arithmetic ability. Also, carbs reduce fatigue and enforce cognitive effects [2]. A relationship is observed between Consumption of sugar and damage of the DNA, with hyperuricaemia resulting in hyper blood pressure and cardiovascular diseases [3]. Also, there is a confirmed association between many other diseases as cancer, obesity, osteoarthritis, gout, and rheumatoid arthritis [4,5,6,7]. Sugar consumption predisposes for yeast infections like Candida albicans [8]. A lot of sugar intake deteriorates brain functioning and causes loss of memory [9]. Atherosclerosis [10]. Consumption of 37.5 g sugar per day has been recommended by American Heart Association for men to get 150 calories [11]. Should the amount was increased, associated problems like decreasing in level of testosterone, and increasing level of estradiol [12]. It is known that diabetic people are more susceptible to be infected, and with a higher tendency toward complications [13]. Hyperglycemia is usually associated with severe COVID-19, and many studies showed an obvious relation between diabetes and COVID-19 resulting mortality [14]. It is also found that hyperglycemia was a key cause for ICU admission [15]. Severe COVOD-19 consistently appeared with diabetes mellitus (DM), and many studies found a great relationship between preexisting hypoglycemia as well as diabetes and COVID-19 mortality. The same fact was with previous outbreaks of corona virus [16-17]. Diabetic individuals are frequently susceptible to infections. Furthermore, they suffer greater complications once infected [18]. Patients of COVID-19 may experience "stress hyperglycemia" even they were without diabetes [19]. Those persons become at risk of dangerous complications and future growing of diabetes [20]. Always the clinicians try to keep blood glucose level less than 180 mg/dl in patients with diabetes and hospitalized due to severe COVID-19 [21]. To elucidate why COVID-19 severity increases with hyperglycemia, several mechanisms of pathophysiology have been suggested [22]. It is evident, such analysis must take in consideration other factors predominant diabetic people like age and obesity [23]. The sugar can impair the immunity of the body [24]. US Department of agriculture says, when people consume high amount of sugar they have the lowest consumption of calcium, vitamins C, B-12, and A. The situation very dangerous for teens and children [25].

Materials and Methods

It was a hard work and exhausting effort to complete this study. We had to track 140 men COVID-19 patients, 82 men and 58 women. All of the patients were hospitalized suffering severe COVID-19 symptoms, and 20 of the men and 26 of the women admitted intensive care units. All the patients had been discharged from the hospital before the start of this research. We got their cell phone numbers and called them. We were able to meet 93 of them. We just asked every one of those we interviewed or called "how much sugar were you used to eat before you got Covid-19?

In this study, we considered a person to eat a large amount of sugar if he consumed more than 45 grams per day. That because the American Health Association recommends eating 37.5 grams of sugar per day to get 150 calories [11]. Based on this consideration, 101 patients, 56 men and 45 women, were eating large amounts of sugar. As for the others, 26 men and 13 women were within acceptable amounts.

Design of Study

The patients were divided into two groups, a group of men and a group of women. Then each group was divided into two subgroups, one that eats a high amount of sugar, and the other that consumes a moderate amount. Subsequently, each subgroup was divided again into a group that entered the intensive care unit and a group that did not, as shown in Table No.1 and Table No.2.

Table 1: distribution of men patients in into groups

Details	82 Men				Total
Consumption of sugar	high Consumption of sugar		Recommended Consumption of sugar		
	56		26		
Admission to ICU	Admitted ICU	Not admitted	Admitted ICU	Not admitted	
Total	18	38	2	24	82

Table 2: distribution of women patients in into groups

Details	58 Women				Total
Consumption of sugar	high Consumption of sugar		Recommended Consumption of sugar		
	45		13		
Admission to ICU	Admitted ICU	Not admitted	Admitted ICU	Not admitted	
Total	21	24	5	8	58

Statistical Analysis

In the statistical analysis of the results, we relied on Chi-Square test. p-value is considered significant when it is less than 0.05. SPSS version 22 was used as reference.

Results

In the men's group, as well as with the women's group, the percentages of subgroups were adopted to indicate whether there were significant differences in the number and severity of infection with Covid-19 as a result of eating sugar. Referring to Tables No.3 and No.4, states clearly that COVID-19 is significantly more common among people who eat a lot of sugar.

Table 3: percentage of patients in each men subgroup

Details	82 Men			
Consumption of sugar	high Consumption of sugar		Recommended Consumption of sugar	
	68.29% a		31.70% b	
Admission to ICU	Admitted ICU	Not admitted	Admitted ICU	Not admitted
Total	21.95% c	46.34% d	2.43% e	29.26% f

Different small letters refer to significant differences at level P ≤ 0.05

Table 4: percentage of patients in each women subgroup

Details	58 Women			
Consumption of sugar	high Consumption of sugar		Recommended Consumption of sugar	
	77.58%		22.41%	
Admission to ICU	Admitted ICU	Not admitted	Admitted ICU	Not admitted
Total	36.20%	41.37%	8.62%	13.79%

Different small letters refer to significant differences at level P ≤ 0.05

Discussion

There is no doubt that excessive eating of sugar has very bad consequences on the health and immunity of the individual, which paves the way for viral and bacterial infections. A number of researches had confirmed a relationship between high blood sugar and infection with COVID-19[14]. In general, people who suffer from high blood sugar, such as people with diabetes, are always susceptible to many different diseases [13]. The researchers noted that most of the people who contracted COVID-19 and had to go to the intensive care units were those who had high blood glucose [15]. This study confirms and is consistent with what was realized by previous studies in this field. The four tables of the study show that the highest percentage of people with COVID-19 were among those who eat large amount of sugar. Also, most of those who entered the intensive care units, with statistically significant difference, from people with excessive in eating sugar.

Conclusion

As it became certain, excessive intake of sugar and exceeding the recommended amounts end up with harmful consequences on the immune system. The person becomes weak in the face of bacterial and viral infections, and as the world is invaded by COVID-19. Extensive awareness campaigns should be carried out on what is involved in the increase in sugar. What much troubles people will face with eating too much sugar. All social media should contribute to this activity.

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