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Identification of the preventive measures taken by people with diabetes against the new coronavirus

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Abstract

Introduction: Considering that diabetes is an important risk factor for adverse results of COVID-19, identifying the preventive measures adopted by people with diabetes can favor the identification of gaps and the development of interventions aimed at specific and individual needs of this public, with a view to promoting health and preventing infections and complications.

Materials and Methods: The inclusion criteria were being over 18 years old, diagnosed with diabetes for at least six months; having access to the internet to answer the questionnaires through a link, and accepting the terms to share anonymous and non-traceable answers.

Results: There was a high average of glycated hemoglobin (7.8 ± 1.6) with variation between 3 and 15%, with 34 people not knowing the value of the last exam/or informing the blood glucose value, showing that some do not know about testing, considered the gold standard and used in the assessment of glycemic control.

Conclusion: These interventions include promoting the patients' adherence to the diabetes therapeutic regimen, implementing strategies to improve access of diabetic patients to healthcare (especially during lockdown situations), informing patients about the need for extra caution with respect to general precautions, and reinforcing the continuation of good dietary practices, safe physical activities, and regular glucose monitoring.

Keywords: Considerations, Diabetes, Times of COVID-19 Epiemic

Introduction

The pandemic caused by the latest SARS-CoV-2 coronavirus (and the COVID-19 disease) is an international public health emergency with geometric propagation capabilities, a significant global socio-economic impact and high mortality rates ^[1, 2]. Brazil reported the third-largest number of confirmed COVID-19 cases (4.2 million) in the world until September 10, 2020, with a mortality rate of 605/million inhabitants, with a total of 128,857 confirmed deaths, with 67,691 tests per million inhabitants ^[3]. There is a great concern about a disease that has spread rapidly in various regions of the world, with different impacts ² that are causing global mourning and a growing feeling of insecurity and uncertainty, especially for those living with a chronic condition, ^[4] such as diabetes. Diabetes can worsen the severity of infections, ^[5] showing a relationship with greater weight loss and greater lung inflammation, with macrophage infiltrates ^[5]. Especially in a new virus and disease. When compared to the general population, people with diabetes have a similar risk of contracting COVID-19. However, once infected, due to a state of metabolic inflammation, they are more prone to the most extreme form of the disease. ^[6, 7] and are predisposed to increased release of cytokines. Furthermore, diabetes is related to many macrovascular and micro vascular complications that affect the overall survival of the patient ^[6]. In order to minimize the number of cases and monitor the pandemic, prevention and control measures against the spread of the current coronavirus, including conventional public health activities, are still the key objectives ^[8, 9]. Considering that diabetes is an important risk factor for adverse results of COVID-19, identifying the preventive measures adopted by people with diabetes can favor the identification of gaps and the development of interventions aimed at specific and individual needs of this public, with a view to promoting health and preventing infections and complications. Thus, the purpose of the study was to identify the preventive measures taken by people with diabetes against the new coronavirus.

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Material and Method

A form with closed questions was shared once a week via a direct connection to Google Forms in June 2020 in relevant groups on diabetes accessible on social media tools, such as Whatsapp and Facebook. The nature of the study sample, therefore, was for convenience. Social networks are suitable environments for researching different subjects and, with voluntary collaboration of people, have become valuable places for collecting research data. The inclusion criteria were being over 18 years old, diagnosed with diabetes for at least six months; having access to the internet to answer the questionnaires through a link, and accepting the terms to share anonymous and non-traceable answers. The first part includes socio-demographic data on the type of diabetes, glyated hemoglobin values, presence or absence of comorbidities, and/or complications relating to age, gender, state of residence, educational level, income, job activity, and clinical data. The second part was marked by questions related to the pandemic including safety measures against COVID-19, type of mask used by the participants, improvements in the self-care routine and changes in blood glucose values.

Results

There was a high average of glyated hemoglobin (7.8 ± 1.6) with variation between 3 and 15 %, with 34 people not knowing the value of the last exam/or informing the blood glucose value, showing that some do not know about testing, considered the gold standard and used in the assessment of glycemic control. The duration of the last exam was 4.2 ± 2.2 months, ranging from one to seven months.

Participants reported self-monitoring their blood glucose 6.1 ± 4.1 times a day, on average, indicating good adherence to

this important self-care practice and 27.6 % use a glucose sensor. In addition, 72.8% had already had altered glucose levels, with statistical significance for sex ($p = .000$), age ($p = .026$), education ($p = .000$) and changes in routine Table 1.

Table 1: Sociodemographic and clinical characteristics of people with diabetes (n = 224)

	N	%	Mean (SD)	Have you ever had altered blood glucose values?
Gender				
Female	189	84.4		.000*
Male	35	15.6		
Age			37 (± 11)	
18-26	50	22.3		
26-38	79	35.3		.026*
38-50	59	26.3		
50-63	25	11.2		
Education Level				
University education	96	42.9		
Postgraduate studies	66	29.5		
High school	46	20.5		
Elementary School	13	5.8		
Did not study	3	1.3		

A total of 43.4% presented hyperglycemia and 29.4% presented hypoglycemia episodes. Respect to the changes caused by the pandemic, 72 % of the respondents reported changes in their diabetes self-care routine Table 2, such as: changes in sleep (50.9 %), physical inactivity (45.5 %), eating more frequently (38.8 %), and feeling unmotivated (37.1 %).

Table 2: Changes perceived by people with diabetes during the pandemic

What has changed in your self-care routine related with diabetes management?	N	%
Changes in sleep	114	50.9
Physical inactivity	102	45.5
I am eating more frequently	87	38.8
I start feeling unmotivated	83	37.1
I had improved the carbohydrate count	65	29.0
I am more attentive to my mental health	65	29.0
I started to have more time available for insulin treatment and for waiting it to take effect	54	24.1
I am eating less frequently	43	19.2
I start feeling more motivated	30	13.4
I am more anxious	3	1.3

Relating to the general preventive measures against COVID-19, the most prevalent measures among people with diabetes were wearing a mask (94.6 %), followed by

washing hands with soap and water (92.9 %) and using gel alcohol (91.1 %). In this item, respondents could also check more than one option Table 3.

Table 3: Preventive measures against COVID-19 carried out by people with diabetes

Prevention measures	N	%
Use of mask	212	94.6
Hand washing with soap and water	208	92.9
Use of gel alcohol	204	91.1
Social isolation	183	81.7
Keep environments ventilated	160	71.4
Cover nose and mouth when sneezing and/or coughing	159	71.0
Avoid touching your hand on the face, eyes, nose, and mouth	155	69.2
Do not share personal items such as cutlery, glass, plates, bottles	120	53.6
Hand hygiene after coughing	116	51.8
Use of disposable fabric for nose hygiene	42	18.8
Use of gloves	34	15.2

Discussion

A report on the prevalence of diabetes found a predominance of women and people over 30 years, with a prevalence of 14.2 to 22.6 percent in people over 60 years of age ^[10]. 52.1 % of people with diabetes have reported comorbidities, raising the risk of COVID-19 complications, as stated by researchers ^[9, 7, 13, 12]. When reporting that patients with at least one or more comorbidities have a poorer clinical prognosis for COVID-19. Average glycated hemoglobin (A1C), a metric considered to be the gold standard for glycemic control assessment, ^[13] was found (7.5 ± 1.4) in this analysis, which is above the recommended goal. Moreover, 72.8 percent noticed fluctuations in blood glucose levels, with 43.4 percent of patients reporting episodes of hyperglycemia during the pandemic. People with diabetes should intensify their metabolic control as a primary prevention strategy against COVID-19, since elevated A1C compromises the immune function, making people more susceptible to infectious diseases. Health practitioners should also advise about complications, re-educate patients about the common signs of hyperglycemia and ketoacidosis, and enable them to control blood glucose levels consistently every 2-4 hours or on an ongoing basis ^[14]. Review 17 identified preventive measures against COVID-19 for individuals with diabetes related to water consumption, healthy eating, drug therapy management, glycemic control, physical activity, avoidance of smoking, multidisciplinary team take health, and vaccination against other respiratory diseases ^[11, 17]. During the pandemic, the advantages of wearing masks include minimizing the spread of the infection and reminding us to continue to practice physical distancing. Facial tissue coverings are a voluntary public health strategy to control the latest coronavirus because of the lack of surgical, N95, and PFF2 masks and can be made with two layers of cloth. Whatever the material of a facial mask, it must fit well and cover nose and mouth to be an effective physical barrier to prevent COVID-19. ^[15, 16]

Conclusions

However, with treatment for metabolic control as a primary method of prevention against COVID-19, little consideration was found, as the glycemic values of the participants were below the recommended target. Given that people with COVID-19 diabetes are at elevated risk of complications, the importance of designing treatments that meet the unique needs of these patients is reinforced. These interventions include promoting the patients' adherence to the diabetes therapeutic regimen, implementing strategies to improve access of diabetic patients to healthcare (especially during lockdown situations), informing patients about the need for extra caution with respect to general precautions, and reinforcing the continuation of good dietary practices, safe physical activities, and regular glucose monitoring.

Conflict of Interest

Not available

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