



Mini review

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COVID-19: Physical Inactivity and Diabetes

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Abstract

The disease caused by SARS-CoV-2 has become a pandemic due to its rapid spread and transmissibility. Among the most vulnerable patients are older adults and those with chronic diseases, such as high blood pressure and diabetes mellitus. The prevalence of diabetes mellitus in Mexico is 10.3%, a considerable figure if we take into account that these are people who know they have the disease. Therefore, the objective of the article is to present an overview and an analysis regarding the epidemiology and consequences of physical inactivity and sedentarism, the main effects of isolation, the benefits of exercise well prescribed in diabetic persons under the current COVID-19 pandemic.

Keywords: SARS-CoV-2, Distancing, Diabetes, Sedentary Lifestyle

Introduction

In December 2019, the first cases of unknown pneumonia were detected in the city of Wuhan, China, subsequently identified as a new coronavirus (CoV) virus, referred to by the International Committee on Virus Taxonomy as acute respiratory syndrome-coronavirus 2 (SARS-CoV-2) [1,2]. Consequently, the disease was named by WHO as coronavirus 2019 (COVID-19). Since then it has spread rapidly in the rest of the world. Faced with this situation on 11 March 2020, the World Health Organization declared that COVID-19 was characterized as a pandemic. As of July 8, 2020, 11.8 million confirmed cases of COVID-19 infected have been reported worldwide, 6.42 million recovered and 544,000 deaths [3]. The most commonly reported symptoms are fever, cough, myalgia or fatigue, pneumonia and complicated dyspnoea, while less common symptoms include headache, diarrhea, hemoptysis, nasal discharge and productive cough [4,5].

Diabetic's Physical inactivity and COVID-19

Preventive measures that have been taken include social distancing or isolation, hand washing, and the use of face masks [4].

This isolation could promote sedentary behavior, reduce regular physical activity and avoid daily activities (such as shopping or the park), which increases the risk of developing diseases or worsening previous pathologies. Generally speaking, remaining inactive during isolation for more than 2 or 3 weeks decreases major determinants of health, such as muscle strength and cardiorespiratory fitness (maximum oxygen consumption) that are predictors of cardiovascular mortality [6-9]. As a result, sedentary and physically inactive people should move more, and active and non-sedentary people should continue to exercise with variations at home during isolation. Physical inactivity generates 3.2 million deaths worldwide, becoming the fourth global mortality risk factor also being one of the main risk factors for cardiovascular disease, cancer and diabetes [10,11].

The WHO indicates that at least 60% of the world's population does not engage in the physical activity needed to obtain health benefits [12]. A recent analysis with 168 countries (1.9 million participants) on global trends in insufficient physical activity (failure to comply with recommendations for at least 150 minutes



of moderate-intensity physical activity or 75 minutes of vigorous intensity per week, or any equivalent combination of both), reported that in 15 years the overall pattern of physical activity has changed little, although inactivity has increased in high-income countries, and found in 2016 a global prevalence standardized by age of 27.5%. The geographical area with the highest prevalence of inactivity is Latin America and the Caribbean (43.7%). The prevalence of obesity ranges from 4% in Japan and Korea, to 30% or more in the U.S. and Mexico, but there is a global trend to increase in most regions by 2020 [13,14].

Type II Diabetes Mellitus (DM2) is a pathological entity with a high global representation, including a set of metabolic diseases, characterized by the presence of elevated blood glucose levels, also called hyperglycemia and which may be caused by poor insulin secretion, a resistance to the action of this, or a mixture of both [15]. Diabetes is one of the most common diseases in people with COVID-19, with a prevalence ranging from 7 to 30%. In a meta-analysis of 12 studies in Chinese population, with an average age of 49.6 years, the prevalence of diabetes was 10.3%, superior to the prevalence of diabetes in Chinese population adjusted by age. The probability of developing a severe case and entering intensive care unit is more than double in people with diabetes and the mortality described is up to three times higher [16,17].

Consequently, the physical activity, diet, and pharmacological management, are fundamental in the treatment of DM2 being the first two being a personal and cultural responsibility, avoiding harmful lifestyles for health [18-20]. The current pandemic scenario can promote impaired control in people with diabetes due to difficulties in accessing the health system, lack of physical activity and increased stress associated with isolation. Strategies should therefore aim at facilitating access to the health system through telemedicine to advise on the adaptation of treatment or any other remotely manageable medical situation, and to guide patients and caregivers in the control of diabetes in sickness to prevent hospitalization. According to the International Diabetes Federation in 2011, there were nearly 366 million diabetics worldwide and it is estimated that by 2030 this number will increase by 51%. This increase is related to obesity and physical activity patterns. It is shown in the reproductive age population, mainly in high-risk groups of developmental diabetes mellitus type 2 (DM2), that lifestyle changes such as regular exercise, healthy weight and eating behavior, can prevent their development [21-23].

In view of all of the above, the improvement of physical activity at this time of pandemic should be changed for activities at home in order to improve cardiorespiratory, muscle and bone health functions and reduce the risk of depression. The physical goals recommended by WHO for adults aged 18 to 64, accumulate a minimum of 150 minutes per week of moderate aerobic physical activity, or 75 minutes of vigorous aerobic physical activity each

week, or an equivalent combination of moderate and vigorous activities [24]. Aerobic activity should be carried out in sessions lasting at least 10 minutes. In order to obtain even greater health benefits, adults in this age group increase the practice of moderate aerobic physical activity to 300 minutes per week, or up to 150 minutes per week of vigorous aerobic physical activity, or an equivalent combination of moderate and vigorous activity. Twice or more a week, carry out strengthening activities of large muscle groups [24]. It is clear that, in order to optimize the results of a healthy habit improvement program, you should increase the time and level of physical activity, decrease sedentary behavior, exercise, promote adherence to interventions and improve the components of fitness related to health: cardiorespiratory resistance, muscle strength, muscle endurance, flexibility, neuromotor control and body composition [25].

Conclusion

Under today's conditions, and because technology allows us, the current situation represents a very good opportunity to learn more about our health care. Another suggestion during isolation, to avoid some consequences of loneliness and try to maintain a routine, is to take advantage of virtuality to perform activities of various kinds such as work, study, leisure, eSports. In any case, the increase in sedentary behavior and inactivity should be avoided, due to its described consequences. In addition to maintaining ergonomic recommendations in different situations (postures, movements, distances), taking active pauses and respecting maximum screen times to avoid eye and general effects, such as computer syndrome [26-27].

Conflict of Interest

The author certify that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

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