

Strategies for Improving Metabolic Control to Reduce Cardiovascular Disease in Type 2 Diabetes Mellitus

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Abstract:

In the recent past, T2DM has emerged as one of the chronic illnesses that has compromised the quality of life leading to reduced life expectancy. However, numerous studies conducted over the years has demonstrated that cardiovascular disease is one of the major causes of deaths among T2DM patients. That raised concerns prompting further research on how it can be handled to ensure improved quality of life. This study was conducted with the aim of determining the relevant strategies that can be used to improve metabolic control and reduce cardiovascular diseases among T2DM patients. The study was conducted by reviewing several relevant pieces of literatures on this topic. The obtained information was analyzed through narrative analysis and a quantitative research approach used to eliminate researcher bias. In the research, it has been revealed that improving metabolic control is an important factor because it reduces cardiovascular disease in T2DM. The research has

further revealed that strategies such as regular physical activity, weight loss, blood pressure control, and change of diet can be used to enhance metabolic control leading to a significant reduction in cardiovascular disease among T2DM patients across the globe.

Introduction

In the 21st century, diabetes mellitus is one of the fastest growing pandemics because of the number of individuals who have been diagnosed with the disease. According to Poretzky (2013), most medical research refers to diabetes mellitus as “a metabolic disease with vascular complications because of the buildup plaque in the arteries anywhere in the human body.” On the other hand, Croniger (2015) assert that some researchers refer to it as “a group of metabolic disorders that is characterized by high levels of blood sugar over a prolonged time.” It is characterized by increased appetite, increased thirst and frequent urination. Furthermore, Croniger (2015) indicates that there are different types of diabetes and each is determined by the symptoms that a patient exhibits. Ashavaid (2012) also argues that there are different ways that can be used to handle the different types of diabetes. One of the most popular ways that is medically recommended in the reduction of diabetes mellitus is the improvement of metabolic control. The regulation of the metabolic pathways according to Sobel & Schneider (2002) involves the “regulation of enzymes in pathways through a decrease or increase of their response to signals.” On the other hand, Poretzky (2013) states that control entails “the monitoring the impact that the changes in the activity of enzymes have on the overall rate of the pathway.”

Methodology

In this chapter: the research philosophy that was used for the study; the selected research design; methods of research; research philosophy; limitations of the chosen methodology; data collection techniques; the ethical considerations will be extensively highlighted.

Research philosophy

According to Novikov & Novikov (2013), research philosophy is a general belief of a researcher on the guidelines that are supposed to be used during the analysis, interpretation,

usage and collection of research data. Rezaul (2018) agrees with Novikov & Novikov (2013) and adds that there are numerous guidelines and assumptions that a researcher can use, but the choice is dictated by the nature of the required data and the study. In this case, the study is about the strategies for improving metabolic control with an aim of reducing cardiovascular disease in T2DM. Consequently, the epistemology philosophy will be the most relevant in this study because it supports both qualitative and quantitative research methods which are the research methodologies popularly used in research. The above philosophy also compliments the collection of relevant data for the completion of this study. For this study, most of the data that will be used is what is known to be true because there exist strategies that can be used to improve metabolic control and they are well documented. In this regard, since the study is supposed to focus on what is known to be true, the epistemology philosophy is the most suitable for this study.

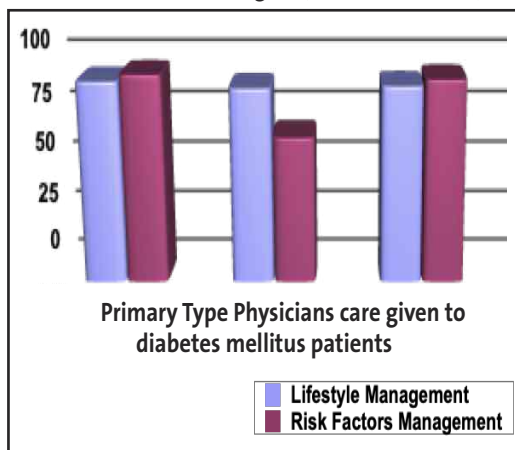
Methodology

The main purpose of this research is to determine the various strategies that can be used to improve metabolic control and to reduce the cardiovascular disease in T2DM. Consequently, based on the nature of the study and the data required for the completion of this study, a quantitative research approach will be the most suitable to ensure the completion of a quality study. According to Cazeaux (2017), a qualitative research approach is considered as “a technique of research that uses the analysis of numerical data using the statistical tools to ensure the attainment of the objectives of a research.” For this study, the quantitative approach will be applied to ensure the collection of adequate numerical data that can be used to determine the numerous strategies that can be used to improve metabolic control and lead to the reduction of cardiovascular disease among T2DM patients across the globe.

Findings

From the several pieces of literatures that were reviewed, several results were obtained as illustrated below.

Figure 1: An illustration of the impacts of the various strategies (Davidson, 2008)



From the reviewed pieces of literatures, around 92% of the primary caregivers stated that lifestyle management is one of the relevant strategies that can be used to improve metabolic control significantly and ensure a reduction in the cardiovascular disease in T2DM, while around 93% of physicians and 90% of T2DM patients supported the same according to the reviewed pieces of literatures. Secondly, according to the reviewed literature, around 93% of primary caregivers believe that the management of the risk factors was the most appropriate way to enhance metabolic control and minimize cardiovascular disease in T2DM. Also, according to the literature, around 93% of physicians and 62% of T2DM patients agreed.

Conclusion

In the contemporary world, the quality of life has significantly decreased because of chronic illnesses such as T2DM. Chronic illnesses have compromised the quality of life because they have significantly decreased life expectancy and increased mortality rates across the globe. However, over the years consistent research conducted by medical practitioners, several strategies have been developed to minimize the effects of chronic illnesses and improve the quality of life. T2DM is one of the chronic illnesses that has

compromised the quality of life and several studies are being conducted to establish methods that can be used to handle it. Cardiovascular disease is one of the common illnesses among T2DM patients, but there are strategies that can be used to reduce it. In this study, the main focus was the establishment of the various strategies that can be used to improve metabolic control and subsequently reduce cardiovascular disease among T2DM patients across the globe. The study was conducted by reviewing several pieces of literatures relevant to the topic.

For instance, in T2DM, research has shown that improving metabolic control is one of the strategies that can be used to reduce cardiovascular disease leading to improved quality of life. It is an indication that improving metabolic control of T2DM patients decreases cardiovascular disease. There are several strategies that can be used to enhance metabolic control but all do not lead to a reduction in cardiovascular disease. Consequently, some of the strategies that have been found to enhance metabolic control and significantly contribute to the reduction of cardiovascular disease in T2DM include: regular physical activities; controlling blood pressure; losing weight; changing diet. These strategies have been found important because they regulate factors that cause cardiovascular disease in T2DM patients across the globe.

Based on the findings of the study, T2DM patients should regulate their weights to ensure a reduction in cardiovascular diseases because obesity is one of the causes of cardiovascular diseases among T2DM patients. The study has also revealed that regulation of blood pressure is also a significant strategy that T2DM patients can use to regulate their metabolic control and reduce cardiovascular diseases because high blood pressure is a major cause of cardiovascular diseases among the T2DM. The study has also revealed that changing diet is also a strategy that can help T2DM patients to improve their metabolic control and reduce cardiovascular diseases. The diet if an individual determines the functionality of their metabolism which plays a pivotal role in cardiovascular diseases. When an individual consumes foods that leads to weight gain, they are likely to increase chances of contracting cardiovascular diseases while individuals who consume healthy foods reduce

their chances of contracting cardiovascular diseases.

Furthermore, the study has revealed that engaging in regular physical activities and exercise is also another important strategy T2DM patients can use to improve their metabolic control and minimize chances of contracting cardiovascular diseases. However, the research has further revealed that although engaging in regular physical activities and exercise are important for T2DM patients in minimizing cardiovascular diseases, it is not advisable to engage in regular intense physical exercises. The study revealed that regular intense physical exercises is dangerous because it has caused deaths since it can lead to higher blood pressure which exposes individuals to cardiovascular diseases.

Recommendations

The research topic was about the strategies that can be used to improve metabolic control and reduce cardiovascular disease in T2DM. The research has highlighted the various relevant strategies that can be used to control the causes of cardiovascular disease leading to its reduction in T2DM. Various findings of the research revealed several recommendations that can be useful for future research on the topic or other related topics as highlighted here:

- One of the strategies that can be used to improve metabolic control and reduce cardiovascular disease in T2DM is regular physical activity. However, the research has also shown that continuous intense physical activity is detrimental because it can compromise cardiovascular health. Limited research is available on the extent of physical exercise that individuals should engage in to ensure that they do not compromise their cardiovascular health in the process of trying to improve their metabolic control and reduce cardiovascular disease. Consequently, it is necessary to conduct research on the levels of physical activities that T2DM patients should engage in to improve their metabolic control and reduce cardiovascular disease without compromising their cardiovascular health. Most T2DM patients do not have medical knowledge and conducting this research and making this information available can help them to understand that although regular physical exercises is important in the im-

provement of their metabolic control, it is not advisable to engage in regular intense exercises.

- Secondly, in review of the literature, aspirin was stated as one of the cardiovascular disease risk factors in T2DM although it is sometimes used as a primary prevention of cardiovascular disease. Consequently, it is important to conduct research on the extent to which aspirin compromises cardiovascular health. The research will be important in revealing the frequency that is helpful in the management of cardiovascular disease and the frequency that can compromise the cardiovascular disease in T2DM.
- Finally, research has revealed that physical activity, diet change, blood pressure control, and weight loss are some of the important strategies that can be used to improve metabolic control and ensure a reduction in cardiovascular disease in T2DM. Consequently, it is important to ensure that relevant medical practitioners encourage T2DM patients to adopt these strategies and ensure a reduction in the risks of cardiovascular disease which is one of the major causes of deaths in the modern world. Engaging in physical activity is a challenge to many people in the modern world but the T2DM patients should be enlightened on its importance to ensure that they engage in it and enhance the quality of their lives by significantly reducing cardiovascular disease prevalence.

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