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Review Article

Role of Family Physician in Diabetic Patient Counseling to Treatment Adherence

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Abstract

Background: The family physician is in a unique position of influencing and treating people with diabetes, toward the adoption of lifestyle changes and the prevention of disease complications. Here comes the importance of the role of family physician in helping diabetic patients adhere to management and treatment.

Aim: This review article aims to highlight the role of family physician in counseling of diabetic patients to adhere to diabetes treatment.

Conclusion: Family physicians play a vital role in the adherence of diabetic patients to care. The consistency of the relationship between the patient and the family provider is a very significant factor in the adherence to medications. Studies also shown that people who have a strong relationship with their health care providers have greater adherence to diabetes regimens.

Keywords: *Burkholderia pseudomallei; Cold Temperatures; Survival After Freezing; Colony Morphology*

Introduction

Primary care physicians or general practitioners are terms always referred to a family physician or family doctor. A family physician is a doctor who should own special techniques and skills to provide adequate broad medical care to each family member. Family physician should acquire doctor skills in addition to soft skills as communication skills. Family physician is trained to provide medical care to the whole body rather than focusing on just one organ; family physicians are usually family-based, problem-oriented, self-centered, and focused [1]. Family physician is not responsible for diagnosing acute and chronic illness (if required, the family physician can refer the case to a specialized doctor), rather they are responsible for counseling on medical health changes, providing health routines, and revealing hidden conditions. The importance of the presence of family physician is limitless [1,2]. They do not treat diseases; nevertheless, they take care of people.

As for diabetes, generally it is a medical condition where the body cannot produce sufficient insulin or the cells are resistant to insulin pickup and usage [3]. Symptoms of diabetes are urinating more often specially at night, thirst, losing weight unintentionally, and feeling of often hunger, tiredness, blurry vision, dry skin, tingling hands or feet. When controlled, diabetes is not a serious condition, but if it is not controlled or well-treated, it can be life threatening [4]. The most common side effect of diabetes mellitus is hypoglycemia and gastrointestinal upset [5]. The major complications of diabetes mellitus are micro-vascular, macro-vascular, and neuropathic. These complications vary according to the degree and period of poorly control of diabetes, and include nephropathy, retinopathy, neuropathy, atherosclerotic cardiovascular disease (ASCVD which includes myocardial infarctions and stroke), hypertension, dyslipidemia, limb amputations [6-8]. In order to manage and control diabetes, the patient must follow lifelong treatment with medicines and medical routines that include dietary restrictions, lifestyle changes, physical activity goals, and self-monitoring of glucose levels, therefore management can be difficult and complex for patients, as they have to make drastic changes in their lifestyles [3].

The importance of the role of family physician in helping diabetic patients adhere to management and treatment, as family physician has usually easier contact and accessibility than endocrinologist, and as we mentioned before a family physician is mostly concerned with the patient as a whole not just concerned with an organ, which usually make the patient feels more comfortable with the family physician [1].

This review article aims to highlight the role of family physician in counseling of diabetic patients to adhere to diabetes treatment.

Participants and Methods

Study design: Review article.

Study duration: Data were collected between 1 June and 30 December 2020.

Data collection Medline and PubMed public database searches have been carried out for papers written all over the world on the most notable points in family physician role in diabetic patient adherence to treatment. The keyword search headings included “diabetes mellitus, adherence to treatment, family physician, family medicine, DM treatment” and a combination of these were used. For additional supporting data, the sources list of each research was searched. Criteria of inclusion: the papers have been chosen on the basis of the project importance, including one of the following topics: diabetes mellitus, adherence to treatment, family physician role, etc.). Criteria for exclusion: all other publications that did not have their main purpose in any of these areas or multiple studies and reviews were excluded.

Statistical analysis

No predictive analytics technology has been used. In order to evaluate the initial results and the methods of conducting the surgical procedure, the group members reviewed the data. The validity and minimization of error were double revised for each member’s results.

Adherence to treatment

Diabetes treatment is complicated, involving dietary change and pharmacological treatment. Vrijens., *et al*. characterized adherence as the degree to which patients are capable of obeying the guidelines for prescribed therapy [9]. Adherence involves positive adherence of patients to the prescribing authority and obedience to care regimens. Adherence means the patient’s inner decision to obey treatment protocols strictly [10]. A recent Saudi study reported (35.7%) of good medication adherence [11] which was higher than previous Saudi studies from Jazan (23%) and Al Hasa (32.1%). Global studies in Malaysia (47%), Tanzania (60%), Ethiopia (51.3%), France (39%), Switzerland (40%), Palestine reported (58%), Egypt (38.9%) and Uganda (71.2%) [11].

Adherence as a term covers different forms of health-related actions. Better patient adherence results in improved disease management and less complications caused by diabetes. Quality of health and adherence to drugs are interconnected. Diabetic patients who stick to their medication may enjoy better quality of life and likewise [12]. Techniques for assessing adherence may either be direct (biological

marker), which is much more efficient but may be invasive and is not typically realistic or indirect as self-reporting, questionnaires and counting pills [13]. Previous studies have shown that adherence to antidiabetic agents has been shown to be strongly correlated with a reduction in HbA1c. For a 10% improvement in adherence, HbA1c decreased slightly from 0.14 to 0.16 percent [14]. A Saudi study conducted in Jazan, and French study showed that enhanced adherence to DM treatment was associated with improved glycemic control [15,16]. These results indicate that patients with low adherence have poor glycemic regulation, although others have not demonstrated correlation between self-reported adherence and HbA1c [17]. The results from U.S. research indicate a rise in the number of diabetes cases who obtained glycemic, cardiovascular and lipid stability from 7.0% to 12.2% and retained very low, with significant potential for progress [18].

The factors been reported to influence adherence may include demographic factors such as age, gender, educational achievements, socio-economic status, employment. Factors also include patient's knowledge, attitude, beliefs and perception about the disease and its severity, cause, complications and treatment [12].

Strategies to advance medication adherence include efficient physician-patient contact should be performed in an environment of confidence and trust, efficient and inexpensive drug formulations should be recommended as far as possible, right, full medical instructions should be given to the patient using verbal and written directions, illustrate how each drug works to manage or avoid symptoms, counseling includes presenting verbal information to patients about their condition and their recovery, lifestyle changes, patients should be instructed to associate the ingestion of medications with everyday occurrences/habits, to sustain the requisite changes, to use in case of chronic illness and to encourage family members, patient understanding of drug use should be measured, evaluate if the patient can afford to purchase the prescription drug and whether alternate treatments or payment options are not considered and clarifying the patient's expectations for treatment and answering questions [19- 21].

Non-adherence to treatment

The word non-adherence defines the degree to which people do not obey the medical guidelines of their physicians [22]. Inadequate adherence to the care of diabetes is a major concern worldwide. Lately, the World Health Organization has reported that just 50 per cent of people living with chronic disease are completely consistent with their care regimen, although the figure in developed countries is much smaller [23]. The level of non-adherence in the overall population of outpatient settings suggested that as many as half medications struggled to achieve the required outcomes due to incorrect usage and 14 - 21% of patients had never even completed their initial prescriptions [12].

Non-adherence can be deliberate or accidental, when care advice is overlooked, wrongly performed or neglected. [22]. There are several plausible explanations for non-adherence with prescription, and more than one is always present with any particular patient. The factors for adherence to medications are multifactorial and hard to detect; they involve age, understanding and length of illness, polytherapy, psychological causes, protection, tolerability, and cost. A few of these variables cannot be modified, while others are open to modification [24]. A general analysis of 20 trials conducted during 1986 and 2007 found marginally greater adherence levels in patients using less frequent dosing drugs ($P < 0.05$) in 15 of 20 studies [25].

Non-adherence also can be due to the negative drug related events. Dose-related weight gain and elevated cardiovascular risk associated with serious management are significant prognosticators of drug non-adherence [26]. Acknowledging the disorder and its effects, knowledge of the danger faced by the disease, recognition of the disease, recognizing the cost advantages of care, morale of the patient family, participation of the patient in the decision-making process, reduced physical abilities [12].

There were a variety of assessments of the effects of adherence on costs, and an important difference between hospital costs and adherence has been found [27]. Previously, a review of more than 700,000 patients with type 2 DM, Egede., *et al*. found that non-adherent patients may have an average inpatient cost of 41% higher than adherent patients and assumed that significant costs could be reduced

by enhancing adherence [28]. In a retrospective analysis involving over 100,000 diabetic patients, with a mean adherence to one or more OHAs ranging from 61.3 per cent to 73.8 per cent over 2 years of follow-up, the average all-cause cost of health care rose by $336 for non-adherent metformin users and by $1,509 for non-adherent sulfonylurea users relative to adherent patients reported that a return on investment was possible by increasing the adherence to antidiabetic therapies [29].

Role of family physician in diabetic patient counseling to treatment adherence

A family physician is a doctor who own special techniques and skills to provide adequate broad medical care to each family member. Concerning our topic about the role of family physician in diabetic patient counseling to treatment adherence, we will discuss the specific role and information the family physician give to the patient. In the following lines we will discuss how to adequately control and manage diabetes. Management of diabetes includes nutrition management, physical activity counseling, diabetes self-management education (DSME), diabetes self-management support (DSMS), stop-smoking counseling, and psychosocial care.

Role of family physician in diabetic patient counseling concerning nutrition management

Nutrition therapy has an essential role in diabetes management. Nutrition therapy is very challenging especially to new diabetes patients. Planning what to eat and drink is the main therapy [30,31]. Family physician advises patients about the medical nutrition therapy (MNT). MNT is associated by decrease in HbA1C by 0.3 - 1% for people with type 1 diabetes and 0.5 - 2% for people with type 2 diabetes [32]. It is important for family physician to emphasis on healthy foods containing many nutrients, plant-based diet, and high-quality foods with less focus on specific nutrients like fats, carbohydrates, and etc. Also weight management is crucial for managing both type 1 diabetes and type 2 diabetes. Nutrition management should be intensive and follow-up should be done frequently by the family physician to achieve better clinical indicators [33].

Role of family physician in diabetic patient counseling concerning physical activity counseling

Physical activity possesses an important role in managing diabetes. Exercise is the general form of the physical activity that is meant to increase physical fitness. Physical activity has been shown to contribute to the control of blood glucose, reduction of cardiovascular risk factors, and achievement of healthy weight loss. Exercise of at least 8 weeks has shown to lower HbA1C by an average of 0.66% in people with type 2 diabetes, even without a significant change in BMI [34]. Family physician aids in inserting the understanding of the role of physical activity as well as taking positive steps in this management. Family physician advises diabetic adolescents and children to exercise at least 60 min/day of moderate intensity aerobic activity, with moderate or vigorous bone and muscle-strengthening activities at least 3 days/week. But when the consulting patient is an adult with type 1 C or type 2 B diabetes, then the family physician recommend an exercise of at least 150 min physical activity per week, extended over at least 3 days/week, with no more than 2 successive days without exercise. And shorter durations of at least 75 min/week training may be adequate for younger patients. When the consulting patient is an older adult, yoga and balanced exercise are suggested 2–3 times/week [35].

Role of family physician in diabetic patient counseling concerning self-management education and support

Diabetes self-management education (DSME) and diabetes self-management support (DSMS) facilitate the access to the required skills, abilities, information that are necessary for effective diabetic management. The main objectives of DSME and DSMS are to improve clinical indicators, achieve desired goals, support problem solving for patients, support health condition, decrease complications and mortality rates, and improve the overall quality of life [36]. DSMS assist diabetic patients to sustain effective self-management through their lifetime of diabetes as they face challenges. DSME assist diabetic patients to identify and apply effective self-management approaches and deal with diabetes at diagnosis, annual evaluation of education, emotional needs, and nutrition, when new complicated factors arise influencing self-management, and transitions in care happens. Those are called the four critical time points [37]. Family physician is patient-centered, providing the patient with DSME, DSMS, and the standard guiding them based on given evidence to each individual

case [36,37]. Studies have shown that DSME improved diabetes knowledge and behaviors [37], quality of life [38], health coping, clinical outcomes [39]. DSME also helped in reducing weight [40], HbA1C [41], and medical care costs [42,43]. There is growing evidence for the role of community health workers [44]. Patients who are consulted by family physician about DSME are more likely to adhere the best to practice treatment recommendations [43,45].

Role of family physician in diabetic patient concerning stop-smoking counseling

Family physician advises diabetic patients to cease smoking cigarettes and tobacco. Numerous clinical trials have shown the efficacy of counseling in smoking cessation. Family physician also provides the diabetic patient with pharmacological treatment for more quitting efficacy. As smoking is a major risk factor for complications, especially CVD and micro-vascular complications, and increased mortality for diabetic patients [46,47].

Role of family physician in diabetic patient counseling concerning psychosocial care

Psychosocial care includes attitudes for the disease, expectations of management and treatment outcomes, psychiatric follow-up, quality of life, and financial resources. Family physician access and follow-up for symptoms of depression, diabetes distress, and anxiety. Family physician also considers accessing older diabetic patients for depression and cognitive impairment [48].

Conclusion

Family physician have a major role in diabetic patient adherence to treatment. The quality of the relationship between patient and family physician is a very important factor of drug adherence. Studies has confirmed that patients who have good relationship with their health care providers have better adherence to diabetes regimens. Family physicians training to factors increasing diabetic patient adherence to treatment is essential. Educational programs should be also conducted among diabetic patients and high risk groups for diabetes to raise adherence to treatment.

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