

Methods to Improve Quality of Life in Diabetics

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ABSTRACT

Background: Severe complications and morbidities are associated with diabetes, especially with poor control of the disease. Diabetes is thought to be the most common cause of renal failure and responsible for about half cases of end stage kidney disease, coronary artery disease, myocardial infarctions, congestive heart failure, strokes, foot problems and eye damage. The presence of any chronic illness with diabetes causes deterioration clinical status which makes tight glycemic control a necessity to improve quality of life and prevent these serious and potentially fatal complications.

Aim: This review was aimed to shine light upon measures that must be taken to improve the quality of life in a patient with diabetes mellitus.

Methodology: We conducted this review using a comprehensive search of MEDLINE, PubMed, and EMBASE, January 1997, through February 2017. The following search terms were used: diabetes mellitus, chronic disorders, management of chronic diabetes, quality of life in diabetic patients, weight control, diabetic diet

Conclusion: Many factors affect the quality of life in diabetic patients including glycemic control, prevention of complications, and socioeconomic/demographic factors. Lifestyle modifications like weight loss and good dietary habits can help patients manage their disease better. Insulin pumps have eased the management of this disease and improved patients' quality of life drastically. Patients should be educated about the importance of support groups that may lead to a better quality of life.

Keywords: diabetes mellitus, chronic disorders, management of chronic diabetes, quality of life in diabetic patients, weight control, diabetic diet.

INTRODUCTION

In both developed and developing countries, the prevalence and incidence of diabetes mellitus have been increasing throughout the last forty years. The reason behind this is thought to be the increase of food intake in unhealthy manners, along with significantly decreased physical activities. The international diabetes federation reported that about 415 million adults around the world have diabetes (about one in every eleven individuals) ^[1]. It is estimated that this number will continue to increase to reach more than 600 million diabetics worldwide. Severe complications and morbidities are associated with diabetes, especially with poor control of the disease. Diabetes is thought to be the most common cause of renal failure and responsible for about half cases of end stage kidney disease. Moreover, a relatively large proportion of diabetics will suffer from coronary artery disease, myocardial infarctions, congestive heart failure, strokes, foot problems and eye damage. The presence of any chronic illness with

diabetes causes further worsening in the clinical status. All this made tight glycemic control a necessity to improve quality of life and prevent these serious (and potentially fatal) complications ^[2].

METHODOLOGY

• Data Sources and Search terms

We conducted this review using a comprehensive search of MEDLINE, PubMed, and EMBASE, January 1997, through February 2017. The following search terms were used: diabetes mellitus, chronic disorders, management of chronic diabetes, quality of life in diabetic patients, weight control, diabetic diet.

• Data Extraction

Two reviewers have independently reviewed the studies, abstracted data, and disagreements were resolved by consensus. Studies were evaluated for quality and a review protocol was followed throughout.

Health Related Quality of Life (QoL)

The center for disease control and prevention (CDC) defines quality of life as a multifactorial concept that includes negative and positive issues of patient's life. The term 'health-related quality of life – HRQoL' has emerged about forty years ago to impact mental and physical health status. Health conditions, socioeconomic status, community-level resources, general condition, and other perceptions are all included in the term HRQoL^[3]. Quality of life has recently become the ultimate goal that researchers and physicians aim at when creating management plans. The introduction of quality of life changed the perception of treatment of diabetes and other diseases from being clinician-centered to becoming patient-centered. Recent guidelines for diabetes management have emphasized on patients' understanding of all possible treatments. Moreover, the use of questionnaires to estimate and evaluate quality of life has become an essential part of care, and provides a good indicator for the success of treatment, and predictor for morbidities and mortalities^[4].

Depression and Diabetes

The prevalence of depression in diabetic patients has been increasing. Some researchers explain this by the exacerbation of diabetic symptoms, comorbidities, and complications when depression is present^[5]. Another possible explanation is the metabolic effects of drugs used in depression treatment. Some studies have found that anti-depressants can be diabetogenic and decrease normal metabolism of carbohydrates. On the other hand, selective serotonin reuptake inhibitors (SSIR), which are considered the mainstay in depression treatment, have been found to positively improve glucose metabolism. Cognitive behavioral therapy was also associated with similar effects. However, other antidepressants like noradrenergic antidepressants and tricyclic antidepressants should be used more cautiously in diabetics as they are proven to negatively impact glycemic control. In fact, a previous study has found that the prevalence of depression differs among diabetics and non-diabetics and is about 24% vs. 17%, respectively. Another large systematic review and meta-analysis has found that depression can be present in up to 27% of diabetic patients^[6]. This increased prevalence necessitate the improvement of quality of life especially for this group of patients, as depression will be associated with worse self-care, along with poor compliance with treatment, all resulting in

significantly more morbidities and mortalities with higher expenses of care. Solid evidence support the fact the depressed diabetics have worse glycemic control and more morbidities and mortalities than non-depressed diabetics. Moreover, depression will cause worse compliance with new lifestyle modifications that include healthy diet, glucose monitoring, and physical activity^[7].

Weight Loss

The first step in controlling diabetes is weight loss and food intake control. Improvement and control are proportionally related to the success of and adherence of new lifestyle modifications. Many studies have reported the efficacy of diet, behavioral approaches, and physical activity in achieving good glycemic control. About 7% reduction in weight was associated with significant improvements in glycemic control reaching about 8.3 mmol/L. A systematic review and meta-analysis has found that very low caloric diets (VLCDs) were associated with significantly better glycemic control along with significant decrease in HbA1c levels. However, more studies are needed to evaluate the difficulty of losing weight among diabetics when compared to non-diabetics^[8].

Insulin Pump

In diabetic patients who fail to achieve sufficient control with oral hypoglycemic, insulin is the mainstay of management. The use of insulin for treatment of diabetes started in 1992, and since then, it has been the drug of choice for managing and treating diabetic patients. Unfortunately, this high efficacy does not come with limitations. As it is given chronically and with injections, compliance of patients to insulin is relatively low and is considered a crucial issue. The necessity of continuous injecting of the drug at specific accurate times become annoying with time leading to poor adherence, and the development of comorbidities. Insulin pumps were first used in the 1970s, and were originally developed to provide a solution for compliance issues. A large randomized control trial that included more than 1400 patients who depended on insulin to control their diabetes, has found that risk of neuropathy, cardiac diseases, dyslipidemia, and nephropathy, decreased significantly when intensive glycemic control was achieved^[9]. Another study compared the use of insulin pump to conventional injection regimens and found that the pump resulted in more adherence and better control of glucose with

relatively safe profiles. Another systematic review and meta-analysis of more than seventy studies has found that better glycemic control and quality of life was achieved with insulin pumps when compared to conventional injections. This improvement was observed in both adults and children populations ^[10]. Therefore, the use of insulin pumps has been significantly increasing recently, especially with the improvement of techniques. However, the high cost and the rates of pump failure are still considered limitations in the use. Moreover, although their risk decrease, ketoacidosis and hypoglycemia are still present and can occur.

Moreover, insulin pump was found to provide better control in both diabetes type I and II. This improved control will consequently result in significant reduction of late complications and morbidities. It was reported that neuropathy, nephropathy, and retinopathy were present in up to 68.5%, 56.1% and 31.4% of diabetics with poor glycemic control. Therefore, the use of insulin pumps does not only improve glycemic control, but also helps prevent long-term morbidity and mortality of diabetes ^[11].

Hypoglycemia is considered the most important, common, and serious side effect of insulin, and is considered to be one of the main limitations of achieving proper treatment level. A study in 2013 found that applying strict glycemic control regimens was associated with a 300% increase in risk of hypoglycemia risk. On the other hand, insulin pumps were proven to significantly decrease the rates of hypoglycemia. Patients who travel a lot also benefit significantly from insulin pumps ^[12].

Diabetics are required to keep a stable balanced eating schedule that allows them to accurately calculate insulin doses. However, insulin pumps provide a reliable solution for this allowing for more flexibility and improved quality of life. It was shown by a recent case-control study that patients with conventional injected insulin with strict eating schedules is extremely difficult for most patients, and is challenging to be maintained, as it significantly limits social life and worsens quality of life. Moreover, many patients were concerned that they were observed as drug addicts publicly. They found that all this was improved significantly among patients who used insulin pumps. A systematic review of present evidence has concluded that the use of pumps provided improved flexibility in lifestyle

and socialization, which was reflected in an improved quality of life ^[13].

Self-esteem, mood, stress rates, physical activity, meals and eating schedules, travelling, socialization, family relationships, working capacity and participation in social activities, were all significantly improved with the use of insulin pumps causing significant increase in quality of life. It simply provides a reliable, conventional method to provide insulin, achieve proper glycemic control, and significantly decrease risk of hypoglycemia and other possible adverse events ^[14].

Support Groups

Family and community can significantly be affected by patients' failure to properly adhere to glycemic control. A study has found that compliance to treatment was significantly improved when patients were surrounded by supporting friends and family members who provided self-esteem, and decreased stress of patients. This was also associated with significant decrease of depression among patients. On the other hand, some studies have found completely opposite findings, and reported that social support can negatively impact the ability to live and deal with the disease. Generally, the nature of social support impact on the disease is has essential consequences and needs to be properly studied ^[15].

Social support has been suggested by most researchers to be a significant component of health care and management. Close friends and family members are the most important providers of this support. Moreover, adolescents with type I diabetes have been found to mostly benefit from social support that resulted in better compliance with treatment and lifestyle modifications. An RCT on adolescent diabetics found that behavioral therapy with the assistance of families significantly improved the relationship of the patient with the family and positively impacted communication, but had no effects on compliance and glycemic control ^[16].

On the other hand, several researchers have been interested in studying the negative effects of social support on patients. These effects include the feeling of criticism or even guilt by patients. Moreover, social support can become a barrier in self-management. It is also difficult when family members want different things than what is required to control the patient's disease, for example, not all family members agree to stick to a healthy diet, making it harder for the patient to stick with the disease. Such

problems are considered significant limitations that turn social surroundings into sources of stress that will negatively influence the disease ^[17].

CONCLUSION

Diabetes continues to be a major contemporary epidemic. In addressing the challenges of confronting the epidemic a primary therapeutic goal is QoL. Many factors affect the QoL in diabetic patients including glycemic control, prevention of complications, and socioeconomic/demographic factors. Lifestyle modifications like weight loss and good dietary habits can help patients manage their disease better. Insulin pumps have eased the management of this disease and improved patients' quality of life drastically. Lastly, patients should be educated about the importance of support groups that may lead to a better quality of life. More research is needed to further elucidate the effects of diabetes on patients' quality of life and how to improve it.

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