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Erectile Dysfunction as a Motivational Tool
for Health Behavior Change in Men with Diabetes

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Abstract

Purpose

The purpose of this literature review is to outline a health promotion plan for healthcare providers and diabetes educators, using erectile dysfunction (ED) as a motivational tool to change health behaviors for men with diabetes. Because the most severe complications might not manifest themselves until later in life, patients with either type 1 diabetes mellitus (T1DM) or type 2 diabetes mellitus (T2DM) are less likely to make the dramatic behavioral changes necessary to control their diabetes at the time of diagnosis.¹

Methods

Twenty-eight articles obtained from CINAHL and Medline databases were examined. Eleven of those articles were selected for analysis based on their specificity in addressing the complication of ED and glycemic control or health behavior change analysis.

Results

Improvements in glycemic control might occur when healthcare providers (HCPs) and diabetic educators teach male patients with T1DM or T2DM of the risk of sexual dysfunction. A man with diabetes might be more intrinsically motivated to make the drastic health behavioral changes required if he understands sexual dysfunction could result from not managing his diabetes and that ED might occur earlier in life.¹

Conclusion

A review of peer-reviewed articles demonstrates changes in male sexual function might occur earlier in the life cycle of males diagnosed with T1DM or T2DM than those

without diabetes, which might provide additional motivation to men seeking to make lifestyle changes that will slow the progression of the disease.

Type 1 and type 2 diabetes are serious medical conditions with severe physiological and economic impacts. According to the Center for Disease Control and Prevention, diabetes mellitus is the seventh leading cause of death in the United States, and in 2009 diabetes accounted for 30.5 million ambulatory care visits to doctor's offices, hospital outpatient clinics, and emergency rooms.² The total cost of diagnosed diabetes in the United States in 2012 was \$245 billion.³ It is associated with long-term complications such as heart disease, hypertension, stroke, blindness, kidney disease, neuropathies, as well as short-term complications such as hypoglycemia, all of which can decrease quality of life.³ Uncontrolled diabetes can lead to both microvascular and macrovascular complications if dramatic health behavior changes are not made. Diabetes management is challenging, requiring daily medication administration and dietary restrictions, however, because several of the most debilitating health complications might not affect a man until he is nearing retirement age, it is difficult to convince younger patients with diabetes to make necessary behavior modifications.⁴ Most of these complications can be attenuated or prevented altogether through diet, exercise, and proper diabetes management.⁴

The rate of diabetes mellitus is not only higher among men than among women in the United States², it also poses some unique challenges for men. One of the most common, yet least known health risks among the general public of both type 1 diabetes mellitus (T1DM) or type 2 diabetes mellitus (T2DM), is erectile dysfunction (ED).⁴ According to Jamieson et al., 50% of men will develop ED within 10 years from the initial diagnosis of T1DM¹, and men with T1DM will develop ED 10–15 years earlier than men without diabetes.^{4,5}

HCPs and diabetes educators play a vital role in health promotion and disease prevention in patients with either T1DM or T2DM. Primary care providers see patients with diabetes regularly, especially those who have poor glycemic control, and are in a good position to help patients make health behavior changes that can result in better glycemic control. According to the Health Belief Model, a person must understand his susceptibility or vulnerability to a condition, the severity of the condition, the benefits of treatment, and barriers to change in order to make a positive health behavior change.⁶ Primary care providers and diabetes educators, therefore, can use the Health Belief Model in counseling their patients about important health behavior changes. Because ED is a potential complication for men with either T1DM or T2DM, the purpose of this literature review is to outline a health promotion plan for HCPs and diabetes educators, using ED as a motivational tool to change health behaviors for men with diabetes.

Methods

Journal articles for this literature review were obtained electronically through CINAHL and Medline databases using the following keywords: diabetes mellitus, type 1, type 2, impotence, male, hypogonadism, vascular disease, sexual health, blood glucose, ED, risk factors, cardiovascular risk, prevention, glycemic control, glycemic therapy, newly diagnosed, hemoglobin A1C, health motivation, nurse practitioner, health behavior change, and health promotion. Twenty-eight articles and dissertations were examined, and 11 were selected for analysis based on their specificity in addressing the complication of ED and glycemic control, and health behavior change analysis. Four of the 11 articles discussed the topic of motivation and health promotion, six articles were primary research

on ED in men with diabetes, and one article discussed the use of the International Index of Erectile Function (IIEF) as a diagnostic tool for ED.

Results

This section will provide a compilation of results from longitudinal studies of the relationship between glycemic control and the development of ED. It will also provide a health promotion plan using effective motivational strategies to help patients with both T1DM and T2DM gain better long-term control of blood glucose levels.

Glycemic Control and Erectile Dysfunction

ED is the most common complication associated with T1DM and T2DM in men, yet among patients themselves it is the least known complication.⁴ All men with diabetes should be asked about sexual function,⁷ especially because ED is often the first indicator of greater microvascular problems such as peripheral neuropathy, nephropathy, and retinopathy.⁴ Some patients originally present to their HCP with complaints of ED, which eventually leads to the diagnosis of diabetes.⁸ Men with either type of diabetes might develop ED 10–15 years sooner than men without diabetes.^{4,5} The severity of ED in men with diabetes is much worse and less responsive to pharmacological therapy than men without diabetes.^{4,5}

If a patient with diabetes has already lost erectile function, intensive glycemic control can alleviate symptoms if strict glycosylated hemoglobin (A1C) and blood pressure goals are maintained.⁴ However, treatment is not as effective as prevention.⁴ All men with newly diagnosed diabetes should be warned of the complication.

The IIEF was developed to help researchers determine the severity of ED in research participants. This 30-question survey includes questions about erectile function,

orgasmic function, sexual desire, intercourse satisfaction, and overall sexual satisfaction.⁹ Severity of ED is classified into five categories based on IIEF score; no ED (IIEF score = 26–30); mild ED (IIEF score = 22–25); mild to moderate ED (IIEF score = 17–21); moderate ED (IIEF score = 11–16); and severe ED (IIEF score = 6–10).⁹ Many clinical trials and research groups use the IIEF to determine severity of ED, and it can be used by primary HCPs to evaluate need for pharmacological interventions.⁹

The studies reviewed reported striking similarities between men with T1DM and men with T2DM and the A1C levels at which they were likely to experience sexual side effects. In a study by Wessells et al., the IIEF was used to evaluate men with T1DM and the presence and severity of ED.⁴ Men with A1C levels less than 7.9% consistently reported no ED, whereas men with an A1C greater than 8.6% reported significant ED.⁴ This indicates a narrow margin between good and poor glycemic control.

Jamieson et al. conducted a similar study to determine the relationship between glycemic control as measured by A1C and severity of ED as measured by the IIEF in men with T1DM.¹ Results of this study were similar to those of Wessells et al. where participants with an average A1C greater than 8.6% reporting ED symptoms and those with an A1C less than 8.1% reporting normal erectile function.^{1,4}

Awad et al. used the IIEF and discovered men with T2DM who had good potency had an A1C less than 7.9%.¹⁰ They also found that glycemic control is independently and inversely associated with the level of ED in men with T2DM.¹⁰ However, although the odds of developing ED decrease by 63% with proper glycemic control, it is not known if the decreased risk persists long-term.⁴

Al-Hunayan et al.'s study of men with T2DM reported similar results.⁸ They found men with A1C levels greater than 8.1% were almost three times more likely to have decreased erectile function compared to men with A1C levels less than 8%.⁸

Motivation to Change Health Behaviors

The Health Belief Model explains that an individual will adopt a health-related behavior based on personal perception of susceptibility to a condition, severity of its consequences, and the benefits and costs of the health behavior.¹¹ Educating patients with T1DM or T2DM on the severe consequences of poorly controlled blood glucose and helping them realize their susceptibility to those consequences can motivate them to action. The possibility of ED can be used as a motivational tool to help men with diabetes realize the severity of diabetes-related consequences and the cost of their health behaviors. A man with diabetes might be more willing to change health behaviors if he understands that he might not be able to engage in sexual intercourse if he doesn't maintain glycemic control. Kearney and O'Sullivan explain that self-appraisal is the key to health behavior change.¹¹ The patient must realize the ramifications of the disease process and decide on his own goals in order to achieve them.¹¹

Once a patient has made the decision to make health improvements, stage-based interventions have been shown as most effective in promoting those health changes.^{11, 12} A patient with newly diagnosed diabetes or a patient with poorly controlled diabetes can set step-based goals to achieve good glycemic control. These goals should include diet and weight loss for those with T2DM and A1C goals for those with either type. Patients should be positively reinforced by HCPs and diabetes educators.⁶ Frequent office visits, regular lab

tests, and home visits from a home health aide are also effective tools to motivate behavior change.⁶

Another key factor in health behavior change is social support. Encouraging patients to share accomplishments with other patients with diabetes or asking a friend or spouse to participate in the diet or exercise plan will help the patient achieve the goals they have set.⁶

Discussion

Implications for Diabetes Educators

HCPs are those most likely to see patients with diabetes on a regular basis; therefore, they should ask these patients about sexual function at each appointment to determine the severity of complications associated with their diabetes. Patients should attend frequent follow-up appointments with the HCP to effectively monitor progress toward A1C and weight goals. A dietician referral might be especially helpful in educating patients and assisting them in making reasonable diet and exercise goals.

Study Limitations

The studies reviewed are limited by the lack of long-term longitudinal data. Many patients who are diagnosed with T2DM have unknowingly had the disease for many years, which could lead to selection bias and subsequently incorrect observed data.¹ Nearly all of the articles reviewed for this paper were observational in nature, and the absence of a randomized population might lead to further bias through the inclusion of exogenous behaviors and variables not accounted for in the study design. Finally, the non-excludability of other contributing psychological and physiological factors such as smoking, hypertension, obesity, and depression that lead to the development of ED makes it

impossible to limit the cause to only poor glycemic control and exclude reverse-causality.¹⁰

Sexual health and ED are topics that many men are uncomfortable discussing with their HCP or with researchers, which again limits research and contributes to the potential for survey and volunteer bias.⁷

Future Research Suggestions

No data currently exist on how effective ED is as a motivational tool for men with either T1DM or T2DM to gain better glycemic control. In patient populations, ED is not a well-known complication of diabetes, even though it is one of the most common.⁴ Future research should focus on longitudinal studies as well as recruiting participants as soon as possible after diagnosis to prevent complications. There are few studies on decreasing the severity of diabetes-related ED by practicing strict glycemic control. More research on this topic is necessary.

Conclusion

Men with diabetes are at a high risk of developing ED and might benefit from the additional behavior-modifying information provided by HCPs and diabetes educators regarding their ability to engage in sexual intercourse later in life. This additional information might motivate men who would otherwise not make the necessary lifestyle adjustments to control their glycemic index.

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