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Diabetes Management

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Diabetes Management: Executive Summary

Introduction of the Problem

Diabetes is a chronic health problem with devastating consequences that may be preventable with appropriate education, understanding, and management of the disease (American Diabetes Association [ADA], 2010). Diabetes Self-Management Education and Support (DSMES) has been shown to improve diabetes management. A Midwest, private family practice did not provide formal diabetes education. Patients were not offered or made aware of formal diabetes education programs in the area. The overall purpose of this project was to standardize the implementation of diabetes education for adult patients with Type 2 Diabetes Mellitus (T2DM) in a primary care clinic. A second purpose was to provide quality educational material to the office that could be utilized for the foreseeable future. These goals were met by identifying patients who were not at the ADA's recommended goal of an A1C that is less than 7%, and then providing quality diabetes education and follow up. The project design included a five question pre and post-education survey and providing the patients quality educational material during the primary care appointment.

Diabetes is one of the most expensive chronic illnesses; however, despite the high cost of diabetes care, very few patients with diabetes achieve the evidence-based goal of glycosolated hemoglobin (HbA1c) less than 7.0% to reduce the instances of microvascular disease (Ekhzaimy, Khan, Masood, Sakharkar, & Sherwani, 2016) According to Bojadzievski and Gabbay (2011), only seven percent of patients reach the recommended goal for HbA1c, blood pressure, and low-density lipoproteins (LDL) cholesterol.

Eighty-four million people are at increased risk for Type 2 Diabetes Mellitus (T2DM) and more than 114 million Americans are at risk for developing complications associated with diabetes (Beck et al., 2018). Individuals with diabetes are at an increased risk for heart disease,

stroke, blindness, kidney failure, dental disease, and lower extremity amputations that are not related to injuries (Centers for Disease Control and Prevention [CDC], 2011). Additional sequelae of diabetes include cognitive decline, cancer, psychiatric illness, chronic liver disease, accelerated arthritis, and other debilitating or fatal conditions (Brown & Hayes, 2013). One of the many complications a patient with diabetes can experience is diabetic foot ulcers (DFU) (Hood, 2017). Up to one third of all patients with diabetes will develop a diabetic foot ulcer in the span of their life (Hood, 2017). Complications of DFU include infection, gangrene, amputation, and early mortality. Complications make up one third of the direct costs related to diabetes (Hood, 2017). Diabetes is the most common cause of non-traumatic limb amputation in the US today (Hood, 2017).

Literature Review

Diabetes is a multi-factorial disease process that involves multiple organ systems and can have devastating complications if the patient does not understand and adequately manage their disease (Beck et al., 2018). According to the Illinois Department of Public Health (IDPH, 2019), nearly 30.3 million people in the United States (9.4% of the population) have diabetes. Each year, 1.5 million new cases of diabetes are diagnosed (IDPH, 2019). It is estimated that by 2030, there will be 350 million people diagnosed with type 2 diabetes mellitus (T2DM) (Wild, Roglic, Green, Sicree, & King, 2004). In Illinois, approximately 1.3 million (12.5% of the population) adults have diabetes, but roughly 341,000 of those do not know they have diabetes (IDPH, 2019). It is estimated that 84 million Americans have prediabetes, of which 3.6 million live in Illinois (IDPH, 2019). Diabetes is the seventh leading cause of death nationally and in Illinois (IDPH, 2019). The American Association of Diabetes Educators (AADE, 2011) revealed a recent cost-benefit analysis of significant savings through the impact of DSMES. Patients who

received formal T2DM education participated in preventative services testing such as HbA1c levels, screening kidney function tests, and eye exams. In addition, they utilized acute care services such as the Emergency Room (ER) and required inpatient hospitalization less often, thus resulting in lower overall healthcare costs (AADE, 2011).

Diabetes is a chronic disease that requires self-management decisions and performance of complex care actions daily (Powers et al., 2017). DSMES provides a foundation to help patients with diabetes to master these decisions and actions and has been proven to improve health outcomes. DSMES not only teaches the patient the skills they need for improved outcomes, but it also provides the support necessary for the patient to successfully implement and sustain coping mechanisms and behaviors needed to continue the self-management process long term. Powers et al. (2017) emphasized the critical need for healthcare providers and their practice settings to provide the required resources and referral process to assist the patient in facilitating improved outcomes. DSMES programs are not only designed to address the education required to manage such a demanding disease; these programs also take into consideration the patients' health beliefs, cultural needs, current knowledge, physical limitations, emotional concerns, family support, financial status, medical history, and health literacy that influence the patient's ability to meet the challenges of self-management (Powers et al., 2017).

An important issue facing patients with diabetes is the complexity of the disease and the medication regimen required for control (Bojadzievski & Gabbay, 2011). Patients who possess limited health literacy have difficulty understanding the disease process and medication regimen. Effective management requires good patient-provider communication skills. The most effective sources of communication, including handouts and internet resources, require higher literacy skills. This discrepancy makes education to patients with diabetes and lower literacy skills a

challenge. Limited health literacy is thought to be a significant contributing factor of diabetes-related complications among underprivileged populations (Babamoto et al., 2009). Studies show that patients with lower health literacy have less understanding of their disease and treatment as well as lower self-management skills than patients with a higher literacy rate (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011). Very little research has focused on how to facilitate the educational needs of those patients with lower literacy skills (Gazmararian, Ziemer, & Barnes, 2009).

According to the American Diabetes Association (2017), DSMES should be performed at the time of diagnosis, annually, if complications occur, and with any modifications in the care plan. Initially, the session should include glucose monitoring, diet, medication options, and exercise recommendations (ADA, 2017). Identification of complications, preventive care, and strategies for implementation of lifestyle changes should also be included. Annually, the treatment goals, preventive care measures, and ways to reduce complications should be discussed (ADA, 2017). Research demonstrates that with the proper education, patients with diabetes have significantly better outcomes than those who do not receive any formal education regarding their disease process (Gagliardino et al., 2013).

Project Methods

As a quality improvement project, this project had three purposes: provide quality evidence-based educational material to the primary care provider, increase provision of education to recently diagnosed patients with diabetes and those patients who have not yet reached their management goals, and to improve patient use of educational resources for patients with T2DM within the practice setting.

The physician and one of the office staff members were given an oral presentation that

included the clinical relevance of DSMES in the primary care practice. Educational material was taken to the office in a binder along with hard copies for the staff to make copies as needed. Educational material was taken directly from the American Diabetes Association and American Association of Diabetes Educators websites. Packets were compiled for patients newly diagnosed with diabetes. Signs designed to remind patients to ask the provider for information regarding diabetes were placed in the waiting room and the individual patient rooms. Local dietitians were listed for patient and physician use.

The project was deemed exempt from the Institutional Review Board at Southern Illinois University Edwardsville. No data was collected from charts or from patients. Patients were provided comprehensive education regarding the disease process, meal plans, plate configurations, medication information, names and phone numbers of dietitians in the area and education on foot and eye care.

Evaluation

A total of 14 patients were educated related to this project. Patients received educational documents and verbal individualized education at their initial appointment. Eight men and six women received a pre-screening survey with five questions relating to their understanding of diabetes and the management of the disease. Nine patients were seen during at follow-up appointments. These patients were given a follow-up survey with five questions to determine the effectiveness of the education provided to them during their previous appointment and the education provided to them to take home and review. Of the nine patients, all but one stated that the education was extremely beneficial and that they learned things they did not know regarding the disease process and the appropriate management required to prevent complications. Additionally, signs were placed in the office to remind not only the provider to provide the

educational material but also to prompt the patients to ask about available resources.

Limitations of this project included a limited sample size as only a few diabetes patients were scheduled during project implementation. Patient cancellations and rescheduling also contributed to a smaller sample size. Strengths of this project included positive patient comments and the adoption of the proposed educational material.

Impact of Practice

The anticipated impact of this project is to improve patient access to diabetes education. Overall, the implementation period was successful as educational material was provided to every patient with diabetes encountered during the implementation period, totaling 42 patients. The provider was able to provide education in a clear and concise manner with material given to the patients to take home and review. Barriers to providing education to patients included lack of time, busyness of the clinic, and limited staff available to educate patients.

The implementation of this protocol was effective. This project allowed for creation of an educational resource for the clinic and providing those resources to patients with diabetes. The educational material was developed to be concise and easy to understand. The project also addressed the need for educational materials in the clinic prompting the physician to ask about more educational materials for diseases such as heart failure and thyroid disease. As a means of continuing implementation, a resource binder was created and additional resources such as local nutritionists and free printable resources were made available to the staff. As evidence by the results, DSMES is an effective way to assist patients in their disease management and a positive step for them to be more successful.

Conclusion

Educating the physician about the importance of DMSES created an environment where

patients receive quality education regarding the management of their disease. During scheduled office visits, patients were provided quality diabetes education. Patients were provided a survey, pre and post education, regarding their knowledge of the diabetes self-management. The patients who were surveyed agreed that the education provided was not only beneficial but also expanded their knowledge of the disease process and self-management. The literature supports the benefit of formal diabetes education to improve compliance and to assist patients in reaching recommended goals. With adoption of this education more patients will be able to successfully manage their diabetes.

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