

Literature Review on Diabetes Management

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Introduction

Diabetes is a chronic disorder that affects millions of people all over the world. Diabetes is characterized by high blood glucose levels, which may be brought on by insulin resistance or insufficient insulin production. Alterations to one's way of life, medical therapy, and vigilant monitoring of one's blood glucose levels are all components of an effective treatment plan for diabetes. Regarding diabetes treatment, nurses play an essential role in several critical aspects, including educating patients, carrying out comprehensive evaluations, and implementing effective therapies. This literature review will analyse the most current and hotly debated nursing therapies and evidence-based practices for controlling diabetes.

Current treatment advances

The following discussion will highlight several recent advances in diabetes medication, especially regarding diabetes management. Insulin therapy is one of the advances that has been made. According to Janež et al. (2020), treatment with insulin, which may include many daily injections or therapy with an insulin pump, is necessary to manage diabetes. In order to improve insulin therapy, rapid-acting insulin analogues, including insulin lispro, insulin aspart, and insulin glargine, have been used. These insulin analogues allow for more precise control of blood glucose levels and more dosing flexibility. According to Janež et al. (2020), insulin pumps have seen a rise in popularity over the last several years as a direct consequence of the advancements that have been made in technology. The administration of drugs in pill form has also had a role in the development of diabetes treatment. Oral medications come in many different families, some of which are used to treat and manage diabetes. Sulfonylureas, biguanides, and thiazolidinediones are just a few examples. Despite this, more recent medications such as SGLT2

inhibitors and GLP-1 receptor agonists are gaining popularity because they are effective without posing significant risks. According to Huang et al. (2019), SGLT2 inhibitors reduce blood sugar by raising the amount of glucose excreted in the urine, while GLP-1 receptor agonists stimulate weight loss by increasing the amount of insulin secreted and lowering the amount of food that is consumed.

Another recent advancement in diabetes care is continuous glucose monitoring, which provides accurate blood glucose readings at all times. Since their introduction, CGM devices have skyrocketed in popularity, enabling patients and doctors to monitor glucose levels in real time and respond appropriately (Vettoretti et al., 2020). CGM systems may also detect complications from hypo and hyperglycemic episodes. Finally, therapies based on technology are also considered to be linked to diabetes treatment. Continuous glucose monitors (CGMs), insulin pumps, and mobile applications are just a few of the technological treatments created to manage diabetes. Continuous glucose monitoring delivers this information in real-time and may notify patients of hypoglycemia or hyperglycemic episodes. Continuous insulin delivery and dosing adjustments depending on blood glucose levels are possible with insulin pumps (Vettoretti et al., 2020). Those with diabetes may benefit from mobile applications that keep track of their glucose levels, medicines, and exercise levels. A nurse-led technology intervention may help patients with their technology usage, fix any problems they may be having, and teach them how to interpret their glucose levels properly.

Controversial treatment advances

The treatment of diabetes, on the other hand, is not without its share of controversial medical advances. The creation of an artificial pancreas is a controversial matter. The artificial pancreas is a method that combines insulin pumps with continuous glucose monitoring

equipment to make automated insulin delivery feasible, according to Renza Scibilia (2020). This method is also known as the "artificial pancreas." Since the gadget can make modifications based on the user's current glucose readings, there is no longer any need for manually administering insulin doses. There is optimism that the development of artificial pancreas technology would assist individuals in better managing their blood sugar levels; nevertheless, there are still many challenges to be solved (Renza Scibilia, 2020). There is also discussion over the moral implications of bariatric surgery. Patients who are morbidly obese or have type 2 diabetes have been demonstrated to benefit from having bariatric surgery, which reduces the size of the stomach. This helps patients lose weight and better regulate their blood sugar levels. The efficacy of bariatric surgery has been shown; however, the procedure is still controversial due to the invasive aspect of the procedure as well as the risks and complications linked with it.

Another controversial aspect of diabetic care is the use of gene therapy. According to de Guimaraes et al. (2021), insulin production may be increased, or insulin sensitivity can be enhanced using a new therapeutic approach called gene therapy. Nevertheless, several obstacles must be overcome before gene therapy can be widely used to improve diabetes control, including establishing its safety and effectiveness and resolving ethical concerns about genetic manipulation. Finally, glycemic goals are a topic of debate in diabetes care. Regarding diabetes care, the ideal glycemic goals are still up for debate. The American Diabetes Association (ADA) and the American Association of Clinical Endocrinologists (AACE) both suggest aiming for an HbA1c of less than 7% in most people with diabetes (Longo et al., 2019). Several authorities have argued that tailor-made goals that account for each patient's unique background and preferences are the way to go. With nurse-led glycemic management, patients may better reach their glycemic goals and reduce their risk of hypoglycemia and other complications.

Nursing process and evidence-based practice

Assessment, diagnosis, planning, implementation, and evaluation are all steps in the nursing process, which is a methodical method for providing patient care. The nursing procedure for diabetes care includes checking blood sugar levels, teaching patients about food and exercise, doling out medicine, and looking out for problems (Schillinger et al., 2023). To effectively treat diabetes, patient education is a crucial nursing intervention. Self-care education for people with diabetes includes teaching them about the disease and how to recognize and treat its symptoms. Glycemic control and risk of complications may both be enhanced with DSME. A patient's requirements, preferences, and cultural background should all be considered while designing DSME (Schillinger et al., 2023). It may be provided in several settings, including group therapy, one-on-one counselling, and even via technology.

To change treatment regimens and avoid problems, monitoring blood glucose levels is an essential part of managing diabetes. Patients may learn how to use glucose meters, analyse glucose readings, and adapt their care depending on the results from the nurses' instructions. Improved glycemic control and decreased risk of complications are two outcomes that may result from people with diabetes engaging in self-monitoring of blood glucose (SMBG) (Schillinger et al., 2023). SMBG should be tailored to each person's unique traits, medical history, and desired outcomes. In addition, maintaining a healthy regimen of diabetes medication is essential for glucose control and avoiding complications. The nurse's role in promoting medication adherence includes teaching patients about the significance of taking their prescriptions as prescribed, addressing their concerns about potential adverse effects, and offering timely reminders

(Schillinger et al., 2023). Nurse-led interventions may enhance diabetic patients' adherence to their medication regimens. Counselling on pharmaceutical use, drug re-evaluation, and monitoring adherence are all examples of such treatments.

In order to encourage good eating habits and minimize complications, nutritional counselling is an important nursing intervention in treating diabetes. Counting carbohydrates, meal planning, and controlling portion sizes are all topics that nurses may discuss with their patients (Schillinger et al., 2023). Improvements in glycemic control, cholesterol levels, and blood pressure have been seen in individuals with diabetes who have undergone medical nutrition treatment (MNT). Patients should have unique MNT based on their unique qualities, interests, and cultural backgrounds (Schillinger et al., 2023). Finally, exercise is essential to diabetes care since it improves glucose control, heart health, and general quality of life. Nurses are in a prime position to promote regular physical activity, advise patients on appropriate exercise routines, and alleviate any safety concerns. Diabetic glucose management and cardiovascular risk factors may be improved with exercise therapy (Schillinger et al., 2023). Patients' features, comorbidities, and desired outcomes should all be considered while designing an exercise program.

Conclusion

Conclusively, nurses play an essential role in patient education, medication management, blood glucose monitoring, dietary counselling, and encouraging physical activity in treating diabetes, which is a complicated and demanding process requiring a multidisciplinary team approach. New drugs, specialized treatments, and individualized strategies have all been introduced as part of recent progress in diabetes care. These developments may help people with diabetes better regulate their blood sugar, minimize the risk of complications, and enjoy a higher

standard of living. However, there are still debates on how best to treat diabetes, including what constitutes an adequate glycemic goal, whether or not insulin therapy is necessary, and whether or not bariatric surgery is helpful. During nursing, individuals with diabetes are more likely to reach their treatment objectives and have fewer negative side effects. To settle these debates and further progress in diabetes care, more study is required.

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