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The nursing management of Type 2 diabetes mellitus

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Aim of the report

This report was written to highlight the main aspects of nursing management for patients with Type 2 diabetes. It is primarily aimed at nurses working in primary care, although may also be useful for nurses working in other areas.

Summary

Type 2 diabetes is increasing in prevalence, and the nurse is often the main health care professional providing care for these patients. This report discusses some of the aspects of care for patients with Type 2 diabetes, including providing advice on diet, and exercise, self-monitoring of blood glucose levels, drug therapy, and the psychosocial impact. The importance of promoting self-management, and joint decision making, is highlighted throughout, and recommendations for practice, in each section, are made.

Introduction

Type 2 diabetes mellitus is a chronic metabolic condition, characterised by hyperglycaemia, caused by defects in insulin secretion, insulin action, or both (National Institute of Health and Care Excellence (NICE) 2015; Aslan 2015). There are an estimated 3.3 million people with Type 2 diabetes in the United Kingdom, with a further 500,000 yet to be diagnosed. It is increasing in prevalence, and by 2030 is expected to be the third leading cause of death worldwide (Bannister 2016). Type 2 diabetes is associated with long term macrovascular, and microvascular, complications, which increase mortality, and reduce quality of life. Obesity, a sedentary lifestyle, and genetic factors, are major risk factors for Type 2 diabetes (NICE 2015).

Pathophysiology

Glucose is the main energy source for the cells of the body, and levels in the blood are usually kept stable by the regulatory actions of hormones, primarily insulin, which triggers the movement of glucose from the blood stream, into the cells, thus lowering blood glucose levels, and glucagon, which signals the release of glucose from the liver to raise blood glucose levels (Bannister 2016). A major cause of Type 2 diabetes is insulin resistance, a reduced response of tissues to the action of insulin, which is further exacerbated by obesity, and a lack of physical activity. When insulin resistance first develops, the body compensates by producing extra insulin. However, as the disease progresses, the pancreas is unable to maintain this, and insulin secretion also becomes impaired, leading to a further deterioration in blood glucose levels. There may also be an increased level of glucagon in patients with Type 2 diabetes, resulting in excess glucose being produced by the liver, and resistant hyperglycaemia (Lippincot Williams & Wilkins 2010; Brashers, Jones & Heuther 2015).

Signs and symptoms

The signs, and symptoms, of Type 2 diabetes are directly related to hyperglycaemia. Increased thirst, and polyuria, occur when the kidneys are unable to reabsorb the excess glucose, altering the osmotic pressure in the tubules, and leading to excess urine production. To counter dehydration the body stimulates thirst (Ashalatha & Deepa 2011; Bannister 2016). The altered metabolism of glucose, fats, and protein, leads to poor use of ingested food, which results in lethargy, and fatigue. Symptoms such as poor wound healing, and recurrent infections, occur due to the high glucose levels in the body stimulating the growth of microorganisms, and impairing blood supply. Genital itching, and thrush, are caused by glucose being present in the urine, which encourages fungal growth (Brashers, Jones & Heuther 2015).

The nurse's role in the management of Type 2 diabetes

Type 2 diabetes is a complex condition, for which most of the management is done by the patient themselves (Yu, et al. 2014). Self-management behaviours, such as eating a healthy diet, taking regular exercise, self-monitoring blood glucose levels, and taking prescribed medications, are all associated with good glycaemic control, and so should be encouraged (Houle, et al. 2015). Traditionally diabetes care has been prescriptive, and check-list driven, but promoting self-management requires a more co-operative, shared approach, where the patient has an active role in their care, and autonomy, and personal preferences, are recognised (den Ouden 2015). This is also in line with the Nursing and Midwifery Council (2015), who state that the nurse should act in partnership with the patient, and encourage, and empower people to share decisions about their care, and treatment. However, this approach works best when both the nurse, and the patient, wish to embrace empowerment, and it may require a change in practice from the nurse, towards a more communicative approach, where the entire focus is on the patient's needs. The nurse should take a holistic approach, recognising the barriers the patient may have to self-management, and seek to address these (Bostrom 2014).

Dietary advice

NICE (2015) advise that providing dietary advice for patients with Type 2 diabetes should be an integral part of their care, and that each patient should receive individual, ongoing, support with their nutritional needs. Although, ideally, every patient should see a dietician, services are often limited, and so the main responsibility for providing dietary advice usually falls on the nurse, particularly practice nurses (Parry Strong 2013).

The nurse must ensure a patient-centred approach is taken, and that consideration is given to the patient's age, social situation, culture, beliefs, eating patterns, and any comorbidities that may have an impact on their diet. However, it has been noted that nurses may be less confident in providing dietary advice for patients whose culture differs to their own. This can be overcome by assessing the patient's current diet, and determining their individual eating habits, to avoid stereotyping, and making assumptions about diet based on culture (Parry Strong 2013; NMC 2015). The patient's willingness to change should also be considered, and the nurse should identify the challenges, and barriers to change, that the patient may have, and assist them with techniques to overcome these (Robertson 2012; NICE 2015). As obesity is a major risk factor for Type 2 diabetes, the focus of much of the dietary advice will be weight loss, which can lead to improved glycaemic control, and reduce cardiovascular risk factors. A low-fat diet, such as is recommended by NICE (2015) is usually advised, however, emerging research shows that a low carbohydrate diet may be more effective (Gulbrand, et al. 2012; Jonasson 2014). Although more research is needed to confirm these findings, and the guidelines have not yet changed, it is important that the nurse keeps up to date with new research, and recommendations, so that they can ensure that the advice given is in line with the best evidence available (NMC 2015). The nurse should also be aware that many patients have difficulty adhering to weight loss programmes, and that they are often unsuccessful. Identifying reasons for this, tailoring interventions for each patient, and using goal setting techniques, may improve success rates, and encourage the patient to make long term changes to their dietary habits (Ciampolini, et al. 2010; Parry Strong 2013; Ortnor Hadziabdic, et al. 2015).

Exercise

Along with dietary changes, exercise interventions should be a main part of the treatment of Type 2 diabetes, and this is often part of the nurse's role. Physical inactivity is one of the major risk factors for Type 2 diabetes, and is responsible for an estimated 7% of the disease worldwide. Increasing activity levels can reduce obesity, but also has a direct impact on glycaemic control, independently of weight loss, and can improve blood glucose levels, reduce risk of complications, increase exercise capacity, reduce adipose tissue, increase lean tissue, improve blood lipid profile, reduce blood pressure, and improve quality of life. It may also increase beta cell function, in those with some residual insulin secreting capacity (Hansen, et al. 2013; Matthews, et al. 2017).

NICE (2013) gives recommendations for identifying people who are less active, and advising them on increasing activity levels. It is suggested that information is given about local opportunities for exercising, there should be a written outline of the discussion, and the goals set, and that initial discussions are followed up, to review progress. Care must also be taken to advise on safety precautions, specifically for those with Type 2 diabetes, and the nurse should be aware of how to safely manage exercise with regards to the circumstances of each patient, such as the type of medication they take, and any comorbidities, or diabetes related complications (Hansen, et al. 2013). Despite these guidelines, exercise advice is rarely discussed during consultations, due to lack of time, lack of knowledge, or lack of training. Information, and training, should be provided for the nurse, as well as the patient. Changing sedentary behaviour can be challenging, and the nurse must be aware of the patient's health beliefs, so that interventions, and advice, can be tailored to the patient's own goals, current activity levels, preferences, and barriers (NICE 2013; Matthews, et al. 2017).

Blood glucose monitoring

According to NICE (2015), self-monitoring of blood glucose levels should be offered to patients with Type 2 diabetes only if they are on insulin therapy, take oral medications that increase the risk of hypoglycaemia while driving, or operating machinery, if there is evidence of hypoglycaemia, or during pregnancy, or pregnancy planning. Blood glucose monitoring is a useful tool, which can help to achieve good glycaemic control, by allowing the patient to understand the effect of diet, and exercise, on their blood glucose levels, make decisions about diet, activity levels, and medications, identify hypoglycaemia, and enhance feelings of being in control (Hortensius, et al. 2012; Malanda, et al. 2015). However, many patients do not test as often as recommended, or do not make use of the results. This may be due to feeling distressed when blood glucose levels are out of target, avoiding thinking about their diabetes, not seeing the value in checking blood glucose levels, not understanding how to interpret the results, a lack of education, or a lack of communication with health care professionals. Therefore, the nurse must ensure that they fully discuss blood glucose monitoring with the patient, assessing any barriers they may have, and ensuring they understand what to do with the results. By providing patient centred care, and determining the patient's needs, and goals, mutual targets can be set, which are realistic, and achievable (Hortensius, et al. 2012; Polonsky, et al. 2014).

Drug therapy

It is beyond the scope of this report to discuss, in detail, each of the medications used for the treatment of Type 2 diabetes. NICE (2015) provide an algorithm for drug therapy, which recommends Metformin as the initial drug of choice, if tolerated, along with how to intensify treatment, if targets for glycaemic control are not met. The nurse must have good knowledge of each of these medications, so that they are able to explain their mode of action, benefits, and side effects, to the patient, and support them to make decisions about drug therapy (Bailey, et al. 2016).

Psychosocial impact

As a complex, long-term condition, Type 2 diabetes can have major psychosocial impacts on the patient. Two of the most common are anxiety, and depression. Patients with diabetes are more than twice as likely as the general population to develop anxiety, and depression, and it may affect around 25% for anxiety, and 11 to 71% for depression (Trento, et al. 2012; Weaver & Madhu 2015). Anxiety, and depression, contribute greatly to morbidity and mortality, in Type 2 diabetes, and result in poorer self-management behaviours, poor adherence to medications, and lifestyle changes, increased complications, poorer glycaemic control, and reduced quality of life (Trento, et al. 2015). To tackle this, it is vital that effective screening is in place, to identify those most at risk, and the nurse is ideally placed to undertake this, as they have ongoing, direct contact with patients. However, there is no standardised screening tool currently in use, and current tools may not take in to consideration the fact that many symptoms for both diabetes, and anxiety or depression, are similar, or meet the needs of ethnic minorities (Roy, et al. 2012). Under recognition of anxiety, and depression, is a major barrier to effective treatment, and many patients may be undiagnosed. Therefore, it is important that the nurse sees screening for anxiety, and depression, as a major part of their role, and that they are aware of the risk factors, such as lower socioeconomic group, ethnic minority groups, living in an area of material deprivation, and a high household burden of child care, or other dependents. This allows the nurse to identify those at risk, at an early stage, and provide appropriate interventions (Garipey, et al. 2015; Weaver & Madhu 2015).

Conclusion

Type 2 diabetes is a complex, long-term, condition, that requires a great deal of self-management. The nurse has an important role to play, in providing information, educating the patient, supporting self-management, and promoting patient autonomy, in areas such as diet, exercise, blood glucose monitoring, and drug therapy. This can be done by ensuring patient centred care is used, to determine the patient's needs, and preferences, and by recognising the challenges, and barriers, such as anxiety, and depression, that the patient may face. This allows appropriate interventions to be implemented, and high quality care provided.

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