

Example of diabetes mellitus research paper

[Health & Medicine](#), [Diabetes](#)



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According to the National Diabetes Information Clearinghouse, diabetes affects people of all ages (niddk. nih. gov). The 2011 National diabetes statistics show that approximately 26 million people of all ages have been suffering from diabetes in 2011, which is about 8 percent of the U. S population (niddk. nih. gov). In 2011 alone, approximately 26 million people had diabetes; 18. 8 million of them were diagnosed with diabetes and another 7 million people were undiagnosed (niddk. nih. gov). Numbers and facts demonstrate the seriousness of the disease that is the leading cause for heart disease, kidney failure, stroke and blindness, among others, and affects the 26. 9 percent of the US population aged over 65, based on statistics from 2010, and many million young people, younger than 20 years, every year (niddk. nih. gov). According to estimates, « the number of diabetic patients will reach 300 million in 2025” (Adegate, Schattner & Dunn, 2006), which will most likely strain and burden the work of health care

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providers. Being the seventh leading cause of death (niddk. nih. gov) in the U. S and affecting the 6 percent of the world's population (Adeghate, Schattner & Dunn, 2006) diabetes mellitus is a serious health condition that should be treated with proper diet, medication and by educating patients about their disease to be able to monitor their condition and inform their health care providers of any worsening or other problems.

Etiology

Diabetes mellitus or most commonly known as diabetes is a complex of diseases that affect metabolism (Shoback, 2011). When a person has diabetes mellitus is distinguished by high blood sugar, due to various reasons. It could be that either their blood cells are irresponsive to the produced insulin or because of a pancreatic malfunction, according to which, there is not enough insulin produced (Shoback, 2011). A patient with diabetes mellitus can either experience frequent urination, or polyuria, and increased hunger and thirst, called polyphagia and polydipsia respectively. (Shoback, 2011). Diabetes mellitus is categorized in three types: Type 1, Type 2 and Gestational Diabetes that occurs during pregnancy.

Both genetic and environmental factors contribute to cause diabetes mellitus (Adeghate, Schattner & Dunn, 2006). External factors like obesity, low-to-no physical activity levels, viral infections and toxic agents are some of the environmental factors that may lead to developing diabetes mellitus (Adeghate, Schattner & Dunn, 2006). Genetic factors also increase the susceptibility for both Type 1 and Type 2 diabetes (Adeghate, Schattner & Dunn, 2006). Type 1 diabetes can be inherited, regardless of the fact that it is not a type of genetically pre-destined diabetes, opposed to Type 2

diabetes where genetics play a critical role in its development (Adeghate, Schattner & Dunn, 2006). Indicatively, in cases of monozygotic twins, likeliness to develop Type 2 diabetes is close to 100 percent (Adeghate, Schattner & Dunn, 2006). Environmental factors can also alter genetic factors and cause diabetes mellitus to develop, which means that if one carries gene susceptibility to diabetes, environmental factors can contribute to make those genes overt and diabetes to develop (Adeghate, Schattner & Dunn, 2006).

Progression of the Disease

Hyperglycemia, as connected directly with Type 2 diabetes, elevates the risks of stroke, myocardial conditions and microvascular events (Fonseca, 2009). Being a progressive disease, Type 2 diabetes also increases the risk of mortality, given that glucose is a continuous variable and any worsening of the system's resistance to insulin and/or decline of the function of β -cells are typical of diabetes' progression (Fonseca, 2009).

Taking for granted that diabetes mellitus is diagnosed based on various findings, any deviation from the acceptable levels as established by the American Diabetes Association, would signal progression of diabetes. More analytically, if fasting glucose level is higher than 126 mg/dL, then the individual runs that risk of retinopathy; if casual or random glucose levels are higher than 200 mg/dL, even if individuals have no obvious symptoms, then there should be alert and awareness of diabetes mellitus (American Diabetes Association, 2007). In consequence, any deterioration in fasting glucose levels or casual/random glucose levels could progress diabetes mellitus. Pre-diabetes also increase the risk of diabetes progression (Fonseca, 2009),

although the exact progression rate is not yet specified, due to little knowledge in regards the large population. “ Prediabetes is a condition in which individuals have blood glucose, also called blood sugar, or A1C levels higher than normal but not high enough to be classified as diabetes. People with prediabetes have an increased risk of developing type 2 diabetes, heart disease, and stroke” (niddk. nih. gov). During 2005 and 2008, 35 percent of adults living in America and 50 percent of people over 65 had prediabetes, which represents approximately 70 million adults of the American population (niddk. nih. gov). Findings of studies in prevention trials have demonstrated that subjects with fasting glucose levels ranging from 100-109 mg/dL and 110-125 mg/dL developed diabetes mellitus by 8 percent and 24 percent respectively, in a time span of approximately 29 months (Fonseca, 2009). So, it becomes apparent that individuals with well-controlled blood sugar levels can avoid progression and complication deriving from having diabetes mellitus (Nathan et. al, 2005).

Treatment and Recommended Diet

Diabetes can be treated with medical nutrition, according to the guidelines given by the American Diabetes Association (2007), based on which glycemic control, blood pressure control, weight reduction and low triglyceride levels are effective ways to keep the disease under control (American Diabetes Association, 2007). For that reason, it is strongly advised that an individual avoids saturated fat in excessive amounts, since it burdens their lipid profile (Franz et. al, 2003). Carbohydrates are allowed, although opinions vary and the same applies to guidelines about how to use carbohydrates in a diabetic’s diet (Sheard et. al, 2004). Medical nutrition

therapies aim in keeping glucose levels and blood pressure levels in a normal range and keep the lipid profile within safe range (Bantle et. al, 2006). Moreover, health is improved via modified food choices that promote health and help prevent cardiovascular disease, obesity, hypertension, dyslipidemia and nephropathy that all derive from having diabetes (Bantle et. al, 2006). At the same time, patients are provided with the necessary energy that will not only improve their metabolic status, but also provide the individual with the nutrients that are needed to achieve health and wellbeing (Bantle et. al, 2006). The list of restrictive intakes include alcohol and sodium, while “ The amount and source of carbohydrates are important determinants of postprandial glucose” (Jenkins et. al, 1981).

Exercise and weight control are also ways to help treat diabetes. Exercise can help keep glycemic levels in a normal range. The most commonly accepted guidelines for exercise suggest about 90 minutes of vigorous exercise per week, or alternatively about one and a half hour of moderate-intensity exercise (Buse et. al, 2007). Aerobic exercise is also recommended, since it also contributes to reducing hyperglycemia and minimizes the risk of coronary heart disease (Buse et. al, 2007).

Role of Nutrition in Diabetes Mellitus Prevention

Nutrition management combined with the physical activity, insulin, patient education and emotional support will complete an effective diabetic treatment (Pinelli et. al, 1999). Proper meal planning with balanced proteins, saturated and polyunsaturated fat, fibre and carbohydrates will provide the patient with a strong ally towards monitoring diabetes and controlling the disease (Pinelli et. al, 1999). “ A correct dietary approach may help to

prevent and to reduce to a minimum any risk of hyperglycaemia, hypoglycaemia and important long-term complications such as obesity, hyperlipidaemia and hypertension, and at the same time normal growth development” (Pinelli et. al, 1999).

Nursing Assessment and Intervention

Patients with diabetes mellitus can be assessed based on their: activity, circulation, ego integrity, elimination, food/fluid, pain/comfort, security and counselling/learning (Reily, n. d). More analytically, a patient with diabetes mellitus should be monitored if they show any reduced muscle strength, dry, hot or reddish skin, any signs of elevated sensitivity or anxiety, polyurine or dilute urine, loss of appetite or nausea, pain in the ulcer wound, skin ulcers and mental impairments, while nurses should also assess any family risk factors or long healing and know of any drug use that can affect the patient’s condition (Reily, n. d).

In regards nursing intervention in patients with diabetes mellitus, nurses are called to assess blood glucose levels and ensure early diagnosis is made to avoid complications (Pearson, 2010). Moreover, they need to determine nursing diagnosis that should be prioritized and implement the necessary nursing interventions strictly personalized to each patient’s case (Pearson, 2010). Injectable and/or oral medication should be applied and they also need to monitor eye and foot condition of each patient (Pearson, 2010). Furthermore, they are responsible for teaching patients how to match food intake and insulin doses, read markings on syringes and the principles of foot and eye care alongside proper dietary intake to help control glucose levels (Pearson, 2010).

Patient Education

Patients with diabetes mellitus should know about blood sugar monitoring, which includes both oral and injected insulin medication and how to test their glucose level, avoiding the blood glucose rollercoaster (hopkinsmedicine.org). Proper foot care is also essential, so patients need to be taught how to cut their toenails and what signs to look out for on their feet, like ulcers (hopkinsmedicine.org). Designing an effective exercise program and how to -and how much- increase their physical activity level is also important, and the same applies to planning a meal with appropriate portions and understanding how carbohydrates effect in blood sugar (hopkinsmedicine.org). Kidney health should be promoted and microvascular disease that leads to heart, eye and kidney conditions needs to be discussed (hopkinsmedicine.org), so patients can take control of their health more effectively.

Conclusion

Diabetes mellitus is one of the major diseases that leads to increased mortality potentiality. It is identified by one of the main symptoms, polydipsia, polyuria and polyphagia and progresses in time if it is not properly treated. However, with proper medical care and nutrition, exercise and physical activity, a patient can help control the disease. Patient education and nursing assessment and interventions play an important role in monitoring diabetes and keep glucose levels under control, to avoid the risk of heart disease, kidney failure and eye conditions. Other than that, patients need to control their weight and learn how to conduct a thorough check on their condition, including their feet and eye care.

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