

Dangers of diabetes and possible treatment nursing essay



**ASSIGN
BUSTER**

Early 1500 B. C (Egyptian Papyrus) 2000 years later, Arataeus (siphon). Late 17th century, Willis and Dobson (mellitus) 1889, Mering and Minkowski, Paul Langerham 1921 to 1922, Federick Banting and Charles Best 1930's and 1940's longer acting insulin formulation 1 to 2% of the general Population 6% Caucasian 10% African American and Asian American.

15% Mexican American

20 to 50% Native American

Uk 1/3 end in renal failure

2-3 times more likely to have a vascular disease

50% having amputation

(department of health and british diabetic association)

Heather Daly SRN, Pat Clarke SRN, Joy Field SRN

Mary MacKinnon MMedSci, RGN

Mayer B. Davidson M. D

Joan R. S. Mcdowell MN RGN SCM DN RNT

Derek Gordon BSc MD FRCP

Review of related literature

According to Mary MacKinnon RGN, treating the diabetes should aim first of all to relieve symptom. Assessment of blood glucose level should be come

first before assessing the symptoms. If blood glucose level drop the symptoms will decrease also (levels may vary from person to person). A diabetic person will learn the connection between symptom and hyperglycemia and benefits of the treatment to improve sense of well-being. Educating not only the patient but also the member of the family to change lifestyle to adjust necessary for the treatment and monitoring, and help the patient to be independent in the management of his condition.

According to Mayer B. Davidson M. D to treat diabetes a patient needs to understand what the diabetes is through teaching/learning process by the help of diabetes educator. The diabetes educator will work hand to hand with the patient and family. The first step in teaching/learning process is the preteaching assessment. The educator must be flexible enough to adopt the right teaching approach so that he may influence and motivate the patient to learn about diabetes. Adding up it is important also for the educator to recognize their own particular beliefs about and ways to learning and the health issues in general. The preteaching assessment is all about collecting information about patients' medical history, social history diet/medication, cultural issues, emotional and coping issues and general learning abilities such as visual, motor, reading and intellectual abilities. This way the educator will learn every details of his patient and came up with a good plan in how to treat the disease together with the patient.

Mayer B. Davidson, M. D.

According to Mcdowell and Gordon diet has been connected with diabetes both its cause and cure. When it was discovered that the urine of a diabetic

patient was sweet, it was consideration that the diet must be rich in carbohydrates to make up for these urinary losses.

Joan R. S. Mcdowell MN, RGN, SCM, DN, RNT

Derek Gordon BSc, MD, FRCP

Research design

The study made use of a qualitative type of research design to gather in-depth understanding the danger and possible treatment of diabetes.

Population Sampling

The researcher employ random sampling method choosing the respondents of the study, which are diabetic patient

Aim

The study aims to provide an evidence for possible treatment of diabetes and its danger

Methodology

This will discuss research for methodology utilize for data gathering and analysis. It is presented in the following sections:

- a) research design,
- b) population sampling
- c) respondents of the study
- d) research instrument

Respondents of the Study

The study will focus on the relationship between the danger and possible treatment for the patient with diabetes

Research Instrument

The researcher formulated a toll based on the research literature. The research developed a tool that aided the researchers in determining the danger and possible treatment of diabetes.

Introduction

Diabetes (diabetes mellitus) is classed as a metabolism disorder. Metabolism refers to the way our bodies use digested food for energy and growth. Most of what we eat is broken down into glucose. Glucose is a form of sugar in the blood - it is the principal source of fuel for our bodies.

When our food is digested the glucose makes its way into our bloodstream. Our cells use the glucose for energy and growth. However, glucose cannot enter our cells without insulin being present - insulin makes it possible for our cells to take in the glucose.

Insulin is a hormone that is produced by the pancreas. After eating, the pancreas automatically releases an adequate quantity of insulin to move the glucose present in our blood into the cells, and lowers the blood sugar level.

A person with diabetes has a condition in which the quantity of glucose in the blood is too elevated (hyperglycemia). This is because the body either does not produce enough insulin, produces no insulin, or has cells that do not

respond properly to the insulin the pancreas produces. This results in too much glucose building up in the blood. This excess blood glucose eventually passes out of the body in urine. So, even though the blood has plenty of glucose, the cells are not getting it for their essential energy and growth requirements.

Diabetes comes from Greek, and it means a siphon. Aretus the Cappadocian, a Greek physician during the second century A. D., named the condition diabainein. He described patients who were passing too much water (polyuria) - like a siphon. The word became "diabetes" from the English adoption of the Medieval Latin diabetes.

In 1675 Thomas Willis added mellitus to the term, although it is commonly referred to simply as diabetes. Mel in Latin means honey; the urine and blood of people with diabetes has excess glucose, and glucose is sweet like honey. Diabetes mellitus could literally mean "siphoning off sweet water".

In ancient China people observed that ants would be attracted to some people's urine, because it was sweet. The term "Sweet Urine Disease" was coined.

Three(3) main types of diabetes

Diabetes Type 1 - You produce no insulin at all.

Diabetes Type 2 - You don't produce enough insulin, or your insulin is not working properly.

Gestational Diabetes - You develop diabetes just during your pregnancy.

<https://assignbuster.com/dangers-of-diabetes-and-possible-treatment-nursing-essay/>

(World Health Organization)

Diabetes Types 1 & 2 are chronic medical conditions – this means that they are persistent and perpetual. Gestational Diabetes usually resolves itself after the birth of the child.

Treatment is effective and important

All types of diabetes are treatable, but Type 1 and Type 2 diabetes last a lifetime; there is no known cure. The patient receives regular insulin, which became medically available in 1921. The treatment for a patient with Type 1 is mainly injected insulin, plus some dietary and exercise adherence.

Patients with Type 2 are usually treated with tablets, exercise and a special diet, but sometimes insulin injections are also required.

If diabetes is not adequately controlled the patient has a significantly higher risk of developing complications, such as hypoglycemia, ketoacidosis, and nonketotic hypersomolar coma. Longer term complications could be cardiovascular disease, retinal damage, chronic kidney failure, nerve damage, poor healing of wounds, gangrene on the feet which may lead to amputation, and erectile dysfunction.

DIABETES STATISTICS:

In the USA – 2007

17. 9m people are diagnosed with diabetes

5. 7m people are undiagnosed with diabetes

57m people have pre-diabetes

186, 300 (0. 22%) people under 20 have diabetes

1 in every 400 to 600 under 20-year olds have Type 1 diabetes

2m adolescents have pre-diabetes

23. 5m (10. 7%) of those over 20 have diabetes

12. 2m of those over 60 have diabetes

12m men (11. 2%) have diabetes

11. 5m women (10. 2%) have diabetes

American Diabetes Association

Symptoms of Diabetes

People can often have diabetes and be completely unaware. The main reason for this is that the symptoms, when seen on their own, seem harmless. However, the earlier diabetes is diagnosed the greater the chances are that serious complications, which can result from having diabetes, can be avoided.

Here is a list of the most common diabetes symptoms:

Frequent urination

Have you been going to the bathroom to urinate more often recently? Do you notice that you spend most of the day going to the toilet? When there is too much glucose (sugar) in your blood you will urinate more often. If your

insulin is ineffective, or not there at all, your kidneys cannot filter the glucose back into the blood. The kidneys will take water from your blood in order to dilute the glucose - which in turn fills up your bladder.

Disproportionate thirst

If you are urinating more than usual, you will need to replace that lost liquid. You will be drinking more than usual. Have you been drinking more than usual lately?

Intense hunger

As the insulin in your blood is not working properly, or is not there at all, and your cells are not getting their energy, your body may react by trying to find more energy - food. You will become hungry.

Weight gain

This might be the result of the above symptom (intense hunger).

Unusual weight loss

This is more common among people with Diabetes Type 1. As your body is not making insulin it will seek out another energy source (the cells aren't getting glucose). Muscle tissue and fat will be broken down for energy. As Type 1 is of a more sudden onset and Type 2 is much more gradual, weight loss is more noticeable with Type 1.

Increased fatigue

If your insulin is not working properly, or is not there at all, glucose will not be entering your cells and providing them with energy. This will make you feel tired and listless.

Irritability

Irritability can be due to your lack of energy.

Blurred vision

This can be caused by tissue being pulled from your eye lenses. This affects your eyes' ability to focus. With proper treatment this can be treated. There are severe cases where blindness or prolonged vision problems can occur.

Cuts and bruises don't heal properly or quickly

Do you find cuts and bruises take a much longer time than usual to heal?

When there is more sugar (glucose) in your body, its ability to heal can be undermined.

More skin and/or yeast infections

When there is more sugar in your body, its ability to recover from infections is affected. Women with diabetes find it especially difficult to recover from bladder and vaginal infections.

Itchy skin

A feeling of itchiness on your skin is sometimes a symptom of diabetes.

Gums are red and/or swollen – Gums pull away from teeth

If your gums are tender, red and/or swollen this could be a sign of diabetes.

Your teeth could become loose as the gums pull away from them.

Frequent gum disease/infection

As well as the previous gum symptoms, you may experience more frequent gum disease and/or gum infections.

Sexual dysfunction among men

If you are over 50 and experience frequent or constant sexual dysfunction (erectile dysfunction), it could be a symptom of diabetes.

Numbness or tingling, especially in your feet and hands

If there is too much sugar in your body your nerves could become damaged, as could the tiny blood vessels that feed those nerves. You may experience tingling and/or numbness in your hands and feet.

Diagnosis of diabetes

Diabetes can often be detected by carrying out a urine test, which finds out whether excess glucose is present. This is normally backed up by a blood test, which measures blood glucose levels and can confirm if the cause of your symptoms is diabetes.

If you are worried that you may have some of the above symptoms, you are recommended to talk to your Doctor or a qualified health professional.

What is insulin?

Insulin is a hormone. It makes our body's cells absorb glucose from the blood. The glucose is stored in the liver and muscle as glycogen and stops the body from using fat as a source of energy.

When there is very little insulin in the blood, or none at all, glucose is not taken up by most body cells. When this happens our body uses fat as a source of energy. Insulin is also a control signal to other body systems, such as amino acid uptake by body cells. Insulin is not identical in all animals - their levels of strength vary.

Porcine insulin, insulin from a pig, is the most similar to human insulin. Humans can receive animal insulin. However, genetic engineering has allowed us to synthetically produce 'human' insulin.

The pancreas

(1. click for large diagram) - © 3d Medical RF

The pancreas is part of the digestive system. It is located high up in your abdomen and lies across your body where the ribs meet at the bottom. It is shaped like a leaf and is about six inches long. The wide end is called the head while the narrower end is called the tail, the mid-part is called the body.

The pancreas has two principal functions:

It produces pancreatic digestive juices.

It produces insulin and other digestive hormones.

The endocrine pancreas is the part of the pancreas that produces insulin and other hormones.

The exocrine pancreas is the part of the pancreas that produces digestive juices.

Insulin is produced in the pancreas. When protein is ingested insulin is released.

Insulin is also released when glucose is present in the blood. After eating carbohydrates, blood glucose levels rise.

Insulin makes it possible for glucose to enter our body's cells - without glucose in our cells they would not be able to function. Without insulin the glucose cannot enter our cells.

Within the pancreas, the Islets of Langerhans contain Beta cells, which synthesize (make) the insulin. Approximately 1 to 3 million Islets of Langerhans make up the endocrine part of the pancreas (mainly the exocrine gland), representing just one fiftieth of the pancreas' total mass.

Etymology (history) of the word pancreas

It is said that the pancreas was described first by Herophilus of Chalcedon in about 300B. C. and the organ was named by Rufus of Ephesus in about 100A. D

However, it is an established fact that the word pancreas had been used by Aristotle (384-322B. C.) before Herophilus.

In Aristotle's *Historia Animalium*, there is a line saying " another to the so-called pancreas". It is considered that the words " so-called pancreas" imply that the word pancreas had been popular at the time of Aristotle, but it had not been authorized yet as an anatomical term.

However, the word pancreas presumably has been accepted as an anatomical term since Herophilus.

The word pancreas comes from the Greek pankreas, meaning sweetbread.

Discovery of insulin

In 1920, Dr. Frederick Banting wanted to make a pancreatic extract, which he hoped would have anti-diabetic qualities. In 1921, at the University of Toronto, Canada, along with medical student Charles Best, they managed to make the pancreatic extract.

Their method involved tying a string around the pancreas duct. When examined several weeks later, the pancreatic digestive cells had died and been absorbed by the immune system. The process left behind thousands of islets. They isolated the extracts from the islets and produced isletin. What they called isletin became known as insulin.

Banting and Best managed to test this extract on dogs that had diabetes. They discovered insulin. In fact, they managed to keep a dog, that had had its pancreas taken out, alive throughout the whole summer by administering it the extract (which was, in fact, insulin). The extract regulated the dogs blood sugar levels.

At this point, Professor J. MacLeod, who had placed the laboratory at their disposal, said he wanted to see a re-run of the whole trial. After doing so he decided to get his whole research team to work on the production and purification of insulin.

J. B. Collip joined the scientific team, which now consisted of Banting, Best, Collip and MacLeod. They managed to produce enough insulin, in a pure enough form, to be able to test it on patients.

In 1922 the insulin was tested on Leonard Thompson, a 14-year-old diabetes patient who lay dying at the Toronto General Hospital. He was given an insulin injection. At first he suffered a severe allergic reaction and further injections were cancelled. The scientists worked hard on improving the extract and then a second dose of injections were administered on Thompson. The results were spectacular.

The scientists went to the other wards with diabetic children, most of them comatose and dying from diabetic keto-acidosis. They went from bed-to-bed and injected them with the new purified extract - insulin. This is known as one of medicines most dramatic moments. Before injecting the last comatose children, the first started to awaken from their comas. A joyous moment for family members and hospital staff!!

Collip did not get on too well with Banting and Best apparently - and he soon left the project. Best continued trying to improve the extract and managed eventually to produce enough for the hospital's demand. Their work was privately published. The Eli Lilly Company soon got to hear about it and offered to assist. It was not long before the Eli Lilly Company managed to produce large quantities of refined pure insulin.

In 1923 Banting and Macleod were awarded the Nobel Prize in Physiology or Medicine. Banting shared his prize with Best and Macleod shared his with Collip. The patent for insulin was sold to the University of Toronto for one dollar.

Type 1 diabetes

Type 1 diabetes is an autoimmune disease – the person's body has destroyed his/her own insulin-producing beta cells in the pancreas.

People with Diabetes Type 1 are unable to produce insulin. Most patients with Diabetes Type 1 developed the condition before the age of 40.

Approximately 15% of all people with diabetes have Type 1.

Type 1 diabetes is fatal unless the patient regularly takes exogenous insulin. Some patients have had their beta cells replaced through a pancreas transplant and have managed to produce their own insulin again.

Type 1 diabetes is also known as juvenile diabetes or childhood diabetes.

Although a large number of diabetes Type 1 patients become so during childhood, it can also develop after the age of 18. Developing Type 1 after the age of 40 is extremely rare.

Type 1, unlike Type 2, is not preventable. The majority of people who develop Type 1 are of normal weight and are otherwise healthy during onset. Exercise and diet cannot reverse Type 1. Quite simply, the person has lost his/her insulin-producing beta cells. Several clinical trials have attempted to find ways of preventing or slowing down the progress of Type 1, but so far with no proven success.

A C-peptide assay is a lab test that can tell whether somebody has Type 1 or Type 2. As external insulin has no C-peptide a lack of it would indicate Type 1. The test is only effective when ALL the endogenous insulin has left the body – this can take several months.

<https://assignbuster.com/dangers-of-diabetes-and-possible-treatment-nursing-essay/>

Diet for a person with type 1

A person with Type one will have to watch what he/she eats. Foods that are low in fat, salt and have no or very little added sugar are ideal. He/she should consume foods that have complex carbohydrates, rather than fast carbohydrates, as well as fruits and vegetables. A diet that controls the person's blood sugar level as well as his/her blood pressure and cholesterol levels will help achieve the best possible health. Portion size is also important in order to maintain a healthy bodyweight.

Meal planning needs to be consistent so that the food and insulin can work together to control blood glucose levels.

The Clinic says you do not need to restrict yourself to boring bland foods. Rather you should, as mentioned above, consume plenty of fruits, vegetables and whole grains – foods that are highly nutritious, low in fat, and low in calories. Even sugary foods are acceptable now and again if you include them in your food plan.

If you have Type 1 you should seek the help of a registered dietitian. A dietitian can help you create a food plan that suits you. Most dietitians agree that you should aim to consume the same quantity of food, with equal portions of carbs, proteins and fats at the same time each day.

Complications – the bad news and the good news

A person with Type 1 has a two to four times higher risk of developing heart disease, stroke, high blood pressure, blindness, kidney failure, gum disease

and nerve damage, compared to a person who does not have any type of diabetes.

A person with Type 1 is more likely to have poor blood circulation through his/her legs and feet. If left untreated the problem may become such that a foot has to be amputated. A person with Type 1 will likely go into a coma if untreated.

The good news is that treatment is available and it is effective and can help prevent these complications from happening.

How to help prevent complications

Keep your blood pressure under 130/85 mm Hg.

Keep your cholesterol level below 200 mg.

Check your feet every day for signs of infection.

Get your eyes checked once a year.

Get your dentist to check your teeth and gums twice a year.

Physical activity helps regulate blood sugar levels

Before starting exercise make sure your doctor tells you it is OK. Try to make physical activity part of your daily life. You should try to do at least 30 minutes of exercise or physical activity each day. Physical activity or exercise means aerobic exercise.

If you have not done any exercise for a while, start gently and build up gradually. Physical activity helps lower your blood sugar. Remember that exercise is good for everybody, not just people with Type 1.

The benefits are enormous for your physical and mental health. You will become stronger, fitter, your sleep will improve as will your skin tone – and after some time you will look great!

Exercise will help your circulation – helping to make sure your lower legs and feet are healthy.

Remember to check your blood sugar level more frequently during your first few weeks of exercise so that you may adapt your meal plans and/or insulin doses accordingly. Remember that a person with Type 1 has to manually adjust his/her insulin doses – the body will not respond automatically.

Type 2 diabetes

A person with diabetes type 2 either:

Does not produce enough insulin. Or

Suffers from ‘insulin resistance’. This means that the insulin is not working properly.

The majority of people with Type 2 have developed the condition because they are overweight. Type 2 generally appears later on in life, compared to Type 1. Type 2 is the most common form of diabetes.

In the case of insulin resistance, the body is producing the insulin, but insulin sensitivity is reduced and it does not do the job as well as it should do. The glucose is not entering the body's cells properly, causing two problems:

A build-up of glucose in the blood.

The cells are not getting the glucose they need for energy and growth.

In the early stages of Type 2 insulin sensitivity is the main abnormality - also there are elevated levels of insulin in the blood. There are medications which can improve insulin sensitivity and reduce glucose production by the liver.

As the disease progresses the production of insulin is undermined, and the patient will often need to be given replacement insulin.

Many experts say that central obesity - fat concentrated around the waist in relation to abdominal organs - may make individuals more predisposed to develop Type 2 diabetes.

Central obesity does not include subcutaneous fat - fat under the skin. The fat around your waist - abdominal fat - secretes a group of hormones called adipokines. It is thought that adipokines may impair glucose tolerance.

The majority of people who develop diabetes Type 2 were overweight during the onset, while 55% of all Type 2 patients were obese during onset.

It is not uncommon for people to achieve long-term satisfactory glucose control by doing more exercise, bringing down their bodyweight and cutting down on their dietary intake of carbohydrates.

However, despite these measures, the tendency towards insulin resistance will continue, so the patient must persist with his/her increased physical activity, monitored diet and bodyweight.

If the diabetes mellitus continues the patient will usually be prescribed orally administered anti-diabetic drugs. As a person with Type 2 does produce his/her own insulin, a combination of oral medicines will usually improve insulin production, regulate the release of glucose by the liver, and treat insulin resistance to some extent.

If the beta cells become further impaired the patient will eventually need insulin therapy in order to regulate glucose levels.

The risk factors for type 2

Age and ethnicity. The older you are the higher your risk is, especially if you are over 40 (for white people), and over 25 (for black, South Asian and some minority groups). It has been found in the UK that black people and people of South Asian origin have five times the risk of developing Type 2 compared to white people.

Diabetes in the family. If you have a relative who has/had diabetes your risk might be greater. The risk increases if the relative is a close one - if your father or mother has/had diabetes your risk might be greater than if your uncle has/had it.

Bodyweight (and inactivity combined with bodyweight). Four-fifths of people who have Type 2 became so because they were overweight. The more overweight a person is the higher his/her risk will be. The highest risk is for a

person who is overweight and physically inactive. In other words, if you are very overweight and do not do any exercise your risk is greatest.

Cardiovascular problems and stroke. A person who has had a stroke runs a higher risk of developing Type 2. This is also the case for people who suffer from hypertension (high blood pressure), or have had a heart attack. Any diagnosis of a problem with circulation indicates a higher risk of developing Type 2.

Gestational Diabetes. A woman who became temporarily diabetic during pregnancy - gestational diabetes - runs a higher risk of developing Type 2 later on. Women who give birth to a large baby may run a higher risk, too.

Impaired fasting glycaemia (IFG) - Impaired glucose tolerance (IGT). A person who has been diagnosed as having impaired fasting glycaemia or impaired glucose tolerance and does not have diabetes runs a significantly higher risk of eventually developing Type 2. People with IFG or IGT have higher than normal levels of glucose in their blood. In order to prevent diabetes it is crucial that you eat healthily, keep an eye on your weight and do exercise.

Severe mental health problems. It has been found that people with severe mental health problems are more likely to develop Type 2.

Possible treatment

A long time ago

Before insulin was discovered in 1921 Diabetes Type 1 was a fatal disease – most patients would die within a few years of onset. Things have changed a great deal since then.

You can lead a normal life

If you have Type 1 and follow a healthy eating plan, do adequate exercise, and take insulin, you can lead a normal life.

Balance insulin intake with food and lifestyle

The quantity of insulin intake must be closely linked to how much food you consume, as well as when you eat. Your daily activities will also have a bearing on when and how much insulin you take.

Checking your blood glucose levels

A person with diabetes has to have his/her blood glucose levels checked periodically. There is a blood test called the A1C which tells you what your average blood glucose levels were over a two-to-three month period.

Type 2 patients need to eat healthily, be physically active, and test their blood glucose. They may also need to take oral medication, and/or insulin to control blood glucose levels.

Prevent developing cardiovascular disease

As the risk of cardiovascular disease is much higher for a diabetic, it is crucial that blood pressure and cholesterol levels are monitored regularly.

Healthy eating, doing exercise, keeping your weight down will all contribute towards good cardiovascular health - some patients will need oral medication for this.

Stop smoking!

As smoking might have a serious effect on the cardiovascular health the patient should stop smoking.

A health care provider

A health care professional (HCP) will help the patient learn how to manage his/her diabetes. The HCP will also monitor the diabetes control. It is important that you know what to do and that a professional is helping and monitoring the management of your diabetes.

In most countries the GP (general practitioner, primary care physician, family doctor) provides this regular care. There are also diabeticians, endocrinologists, cardiologists, nurses, internists, pediatricians, dietitians, podiatrists, ophthalmologists, optometrists, sports specialists and many others.

If a diabetes patient is pregnant she should see an obstetrician who specializes in diabetes (gestational diabetes). There are pediatricians who specialize in caring for the infants of diabetic mothers.

The aim of diabetes management

The main aim of diabetes management is to keep the following under control:

Blood glucose levels

Blood pressure

Cholesterol levels

High and low blood glucose

The patient will need to make sure his/her blood glucose levels do not fluctuate too much.

Hypoglycemia - low blood glucose - can have a bad effect on the patient.

Hypoglycemia can cause:

Shakiness

Anxiety

Palpitations, Tachycardia

Feeling hot, sweating

Clamminess

Feeling cold

Hunger

Nausea

Abdominal discomfort

Headache

Numbness, pins and needles

Depression, moodiness

Apathy, Tiredness, Fatigue, Daydreaming

Confusion

Dizziness

Bad coordination, slurred speech

Seizures

Coma

Hyperglycemia - when blood glucose is too high - can also have a bad effect on the patient. Hyperglycemia can cause:

Polyphagia - frequently hungry

Polydipsia - frequently very thirsty

Polyuria - frequent urination

Blurred vision

Extreme tiredness

Weight loss

Cuts and scrapes will heal slowly and badly

Dry mouth

Dry or itchy skin

Erectile dysfunction (impotence)

Recurrent infections

Kussmaul hyperventilation: deep and rapid breathing

Ca