

Diabetes research paper examples

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



Introduction

A person with diabetes (also known as Diabetes mellitus) is considered to have high blood sugar levels. Diabetes is considered to be a metabolic disease with the number of new cases increasing every year. Common symptoms of diabetes are increased hunger, urination and increased thirst. These symptoms are caused due to abnormal levels of blood sugar in the body. If diabetes is untreated at early stages, complications in health are observed.

Non-ketotic hyperosmolar coma and diabetic ketoacidosis are some of the acute complications that arise when diabetes is untreated. Long term complications include kidney failure, retinopathy and cardiovascular disease.

Diabetes in humans can be caused due to two main reasons. The first being the inability of the pancreas to produce insulin. The second reason is that the cells in the body do not respond to insulin in an appropriate manner.

Diabetes is due to either the pancreas not produce enough insulin, or because cells of the body do not respond properly to the insulin that is produced. (David, G & Dolores S, 2011) Health care professionals claim that there are three types of diabetes mellitus. The third type of diabetes which is rarely found is known as gestational diabetes. (Diabetes factsheet, WHO. 2013)

Insulin-dependent diabetes mellitus is known as Type 1 diabetes. In this case, the body fails to produce insulin on its own. It is also termed as ‘juvenile-diabetes’

The other type of diabetes, commonly known as type 2 DM is caused due to

the failure of cells in the body to utilize insulin. In rare cases, there is insulin deficiency observed. Type 2 DM is referred to as 'Adult-onset diabetes.'

The third type of diabetes is known as gestational diabetes and is found in pregnant women. In this case, patients with no history of diabetes are reported to have high blood sugar.

Therapeutic considerations for diabetes

Modern-day medications have helped diabetics control their blood glucose levels to a considerable level. Some of the drugs that have been used over the last 10 years are mentioned below:

Sulfonylureas: The major target in type 2 diabetes is to increase the output of insulin from the pancreas. Increasing the amount of insulin will help decrease the excess glucose present in the blood. Sulfonylureas are a class of drugs that induce the pancreas to release insulin and lower blood glucose levels.

Meglitinides - repaglinide (Prandin) and nateglinide (Starlix): Meglitinides are a class of new drugs that have been used for type 2 diabetes. They have the same objective as sulfonylureas. They promote the pancreas to secrete insulin. However, the mechanism that these drugs work is different. These drugs use potassium based channels to work on the cell surface of insulin producing cells.

Prandin: Prandin was used in a 3 month clinical study. The study showed promising results. Fasting blood glucose levels reduced to 60 mg/dl. On the other hand, post meal glucose levels reduced to 100 mg/dl. The drug is short acting and reduces post meal glucose levels to a significant level. However, it is not effective in reducing fasting blood glucose levels observed in post-

meal glucose levels.

Symlin (pramlintide): Symlin is an anti-hyperglycemic medication that has been used for type 1 and type 2 diabetes. It is an injectable drug and is treated with insulin. Symlin contains an active ingredient called Pramlintide. It is a synthetic analog of amylin found in humans. Amylin is synthesized by the pancreas to control blood glucose levels in the body. (Stöppler M C. 2011)

Alternative therapeutic considerations for diabetes

Homeopathy has been widely used for various human diseases. It has now been applied to diabetes. Homeopathy may not cure the disease but would reduce complications of a disease to a significant level.

A recent clinical study was published stating the benefits of homeopathy in diabetic distal symmetric polyneuropathy. The study was conducted on 336 patients of which 247 patients were analyzed. The results of the study showed possible benefits of homeopathic medication on patients. However, further studies had to be conducted to analyze the quality of life in patients with type 1 and type 2 diabetes. (Nayak C et al; 2013)

The use of Ayurvedic treatments for type 2 diabetes is increasing over the past decade. Ayurvedic treatment is used as an alternative medicine for type 2 diabetes. A mixture of herbs is used by Ayurvedic physicians in most diabetic cases. These herbal mixtures are based on a diet and lifestyle of an individual. Ayurvedic treatments are based on the three 'doshas' which is based on individualized treatment. In some studies, glucose levels were lowered to a significant level. However, replication of the study and sample size were some of the drawbacks of the study. To conclude, Ayurvedic

treatment can be used as a promising alternative intervention for diabetes. (Sridharan K et al; 2011)

Therapeutic Approach

Diagnosis: The main aspects of diabetes mellitus is hyperglycemia.

Hyperglycemia can be diagnosed by the following: (1) A person with fasting plasma glucose level of equal to or more than 126 mg/dl. (2) An individual with a Plasma glucose \geq 200 mg/dL. This result is concluded after oral administration of 75g glucose. (3) An individual with plasma glucose level of more than 200 mg/dl. (4) A person with Glycated hemoglobin of equal to or more than 6.5%. (Diabetes, WHO. 1999)

Dietary and lifestyle Recommendations

Keeping diabetes under control and adherence to medical advice; reduces risk of complications with diabetes. There should be a regular monitoring of blood sugar so that any symptoms or problems is detected earlier and be treated accordingly (Mayo Clinic, 2013). In Type 2 diabetes, prevention starts with increasing knowledge about the illness or disease; patient must be aware and well informed on his condition. If diabetes is left untreated it leads to great danger in progression of symptoms, and it can be fatal. The best thing to do to minimize these risks, there are steps an individual must take into action to prevent the onset of diabetes in all possibilities. An individual has the capability to influence his health to avoid diabetes since genetics plays a significant role in life. The biggest risk factors that individuals can control are obesity and inactive lifestyle; people should strictly monitor their weight. Healthy diet and good exercise are best ways to prevent and control

diabetes and proper medication to regulate blood sugar effectively. Exercise should be monitored as well since over exercising could lead to more complications. Diet is very important because it aids with weight loss; some foods like nuts even in small amounts can supply health benefits in the regulation of blood sugar level. Avoiding sugary, foods high in cholesterol is highly recommended for patients with type 2 diabetes.

Nutritional Supplementation and Botanical Medicines

Botanical medicine have been used for more than 50 years for diabetics.

Many of the plants have been found to lower blood glucose levels and control insulin tolerance in the human body. Garlic (*Allium sativum*) is used widely to lower glycemic levels in diabetics. Russian Tarragon (*Artemisia dracunculus* L.) is known for its anti-diabetic properties. Many studies have used Ginseng (*Panax spp.*) which is used to control diabetes. Gymnema (*Gymnema sylvestre*) is a plant species from Africa. It is known for its ability to induce the pancreas to release insulin. (William T. C, Jaqueline M. S, & David M. R. 2011)

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