

## A Review on *Diabetes Treatment Methods*

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### Abstract

Diabetes Mellitus is a chronic disorder which is caused by metabolic dysfunction due to insufficient insulin secretion or insulin dysfunction which creates the disturbances in the metabolism of proteins, fat and carbohydrates. Primarily drugs are used to treat diabetes mellitus. Oral hypoglycaemic agents are also used to treat the disease sulphonylureas, biguanides, alpha glucosidase inhibitors, meglitinide analogues, and thiazolidinediones are most useful Oral hypoglycaemic agents.

**Keywords:** *Drugs; Diabetes Mellitus; Insulin; Metabolites*

### Introduction

Diabetes Mellitus is caused due to insulin deficiency which causes metabolic disorders it is also considered as group of metabolic disorders and contains high blood sugar levels for long period [1-5].

Diabetes is caused due to either damage of pancreatic cells that produce insulin or the receptors of insulin on the body cells stop responding to insulin. There are mainly three types of diabetes mellitus they are as follows:

Type 1 diabetes mellitus

Type 2 diabetes mellitus

Gestational diabetes

#### Type 1 diabetes mellitus

It is caused due to damage of BETA-cells of pancreas due to which the BETA-cells fail to produce enough insulin to the body. It is also known as insulin dependent diabetes mellitus or Juvenile diabetes. It increases glucose levels in the blood. The causes of type 1 diabetes mellitus are still unknown [6-8]

#### Type 2 diabetes mellitus

It is caused due to insulin resistance. The insulin receptors which are present on the body of the cell stop responding to the insulin. In very rare cases it may also lead to insulin deficiency. Type 2 diabetes mellitus is also known as non-insulin dependent diabetes mellitus or adult onset diabetes. It is mainly caused due to excessive body weight and lack of physical exercise [9-11].

## **Gestational diabetes**

It is the main form of diabetes mellitus which is mostly seen in pregnant women during the third trimester who do not have previous history of diabetes which increases high sugar levels in blood. It usually resolves after childbirth. It is caused due to the existence of human placental lactogen in the blood which is susceptible to insulin receptors [12-15].

## **Treatment Methods**

### **Treatment for type 1 diabetes**

Treatment for type 1 diabetes includes the following things:

In take of insulin and related medication

Frequent blood sugar monitoring

Taking healthy diet

Maintaining regular exercise

**In take of insulin:** The people who are suffering with type 1 diabetes need life long insulin therapy. Different types of insulin are:

Rapid-acting insulin

Long-acting insulin

Intermediate options

The administration of insulin can be in different forms e.g., injections, insulin pump [16-18].

**Other medication:** Other medication for type 1 diabetes includes cholesterol lowering drugs, high blood pressure medications, Pramlintide which can slow down the movement of food in stomach [19].

**Frequent blood sugar monitoring:** The patients of type 1 diabetes should monitor their blood sugar levels at least four times a day. They should wash their hands properly before they check their sugar level. They should be cautious that the blood sugar level is meeting their regular need or not [20-23].

**Taking healthy diet:** The people with diabetes should be more cautious in case of their diet. Always they should prefer low carbohydrate food, food containing high fiber and low fat. They can take vegetables, fruits and whole grains [24].

**Maintaining regular exercise:** The people with diabetes should take doctors suggestion regarding their physical exercise. The people should plan at least for half an hour activity. In most of the cases physical activity reduces the blood sugar levels. When the people start a new physical exercise they should check up their blood sugar level more often. The patients who find difficulty in doing physical activity should start up slowly and increase it gradually [25-28].

**Rare treatments:** The treatments which are experimental and are successful, they include stem cell treatment, pancreas transplantation and islet cells transplantation [29-33].

### **Treatment for type 2 diabetes**

Treatment for type 1 diabetes include the following things [34-37]

Healthy eating habits

Regular physical activities

Diabetics medication or insulin therapy

Blood sugar monitoring

**Healthy eating habits:** The people are suggested to take low carbohydrate food, food containing high fiber and low fat. They should prefer low animal fat and low glycemic index foods may also help in reducing the blood sugar level [38-42].

**Blood sugar monitoring:** Blood sugar monitoring should be done regularly based up on their regular treatment plan. The patients of type 2 diabetes should monitor their blood sugar levels atleast four times a day. They should wash their hands properly before they check their sugar level. They should be cautious that the blood sugar level is meeting their regular need or not [43-48].

**Regular physical activities:** The patients with type 2 diabetes may prefer aerobic exercises or regularly dancing however they should take doctors suggestion regarding their physical exercise. The people should plane atleast for half an hour activity. In most of the cases physical activity reduces the blood sugar levels. When the people start a new physical exercise they should check up their blood sugar level more often. The patients who find difficulty in doing physical activity should start up slowly and increase it gradually [49-53].

**Diabetics medication or insulin therapy:** Some of the patients of type 2 diabetes can maintain their blood sugar levels by monitoring their regular diet and physical exercise. However it differs from patient to patient based up on their physical condition. It includes insulin therapy or different combinations of the medicines [54,56].

There are different type of insulin therapies for type 2 diabetes, they include:

Insulin glulisine (Apidra)

Insulin lispro (Humalog)

Insulin aspart (Novolog)

Insulin glargine (Lantus)

Insulin detemir (Levemir)

Insulin isophane (Humulin N, Novolin N)

Other medication includes the use of Metformin (Glucophage, Glumetza, others), Sulfonylureas, Meglitinides, Thiazolidinediones, DPP-4 inhibitors, GLP-1 receptor agonists, SGLT2 inhibitors.

### **Treatment for Gestational diabetes**

In case of gestational diabetes proper monitoring is necessary to keep the baby healthy and to avoid the future complication. The treatment methods may include [57]:

Maintaining healthy diet

Maintaining proper physical activities

Regular monitoring of blood sugar levels.

Medication

**Maintaining healthy diet:** Making the proper diet plan is necessary during the pregnancy to grow proper weight. You may also take your doctors suggestion who may set proper targets for the weight gain. They should take the high nutritious food with high fiber and low calories with low fat [58].

**Maintaining proper physical activities:** The regular exercise before, after or during pregnancy may help to maintain fitness and also to reduce the blood sugars. However the regular exercise may cause discomfort during pregnancy which may also leads to the side effects like swelling, muscle cramps and back pain also. The regular activities like gardening and house making can also be considered as exercise [59].

**Regular monitoring of blood sugar levels:** During pregnancy the woman should check their blood sugar level regularly for four or five times a day. To check the body sugar levels they should take a drop of blood from the edge of their finger using a needle and place it on the strip [60].

**Medication:** In most of the cases medication is not required in case of gestation diabetes, but in few cases they may need the intake of insulin. Some of the doctors also prescribe oral sugar controlling drugs [61].

## Conclusion

By studying the different types of treatment methods for diabetes we can say that proper maintenance of food habits, doing regular exercises and frequent blood sugar monitoring helps us majorly to control our body sugar levels.

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