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A Review Article on Diabetes

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Abstract
"Diabetes mellitus" is one of the most common non-communicable diseases worldwide. India faces several challenges diabetes management, including a rising prevalence in urban and rural areas, lack of diseases awareness among glycaemic control and rising prevalence of diabetic complications. Insulin therapy for diabetes is most commonly delivered via subcutaneous injection, up to 4 times a day. Long-term insulin therapy, compounded by the invasive nature of its administration, has caused problems with patient compliance, ultimately influencing patient outcomes. There is an increase in the prevalence of type-1 diabetes also, but main cause of diabetic epidemic is type-2 diabetes mellitus, which accounts for more than 90% of all diabetes cases. Type-2 diabetes is a serious and common chronic disease resulting from a complex inheritance-environment interaction along with other risk factor such as obesity and sedentary life style.

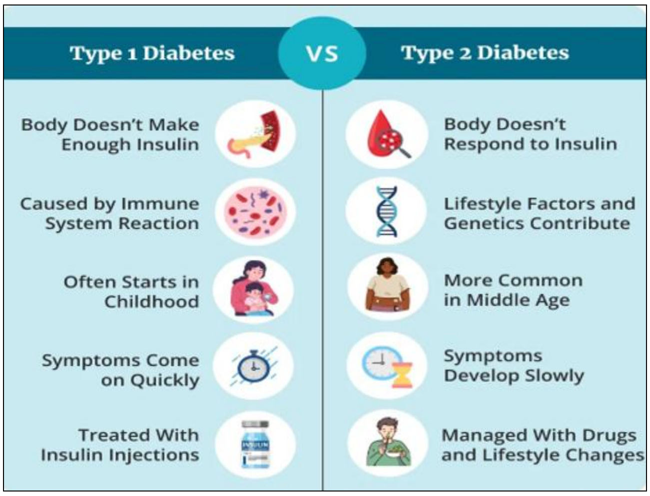
Keywords: Diabetes Mellitus, Diagnosis, Cause and Treatment, Type-1 Diabetes, Type-2 Diabetes, Insulin, Blood Glucose

Introduction
Diabetes is a chronic condition characterised by abnormalities in insulin secretion or action, or sometimes both. Insulin is a hormone released by the pancreas that works as the primary messenger for moving glucose from consumed meals to flow from the blood stream into the body cells where it is used for energy.
classified into 2 types:
Type-1 {insulin-dependent}
Type-2 {non-insulin-dependent}
Diabetes causes serious health problem globally, primarily increasing the risk of heart disease and other complications.

Methodology
The authors used 88 different published articles for the accomplishment of this review article. Google search engine was used for accessing published articles from databases like google scholar, research gate, PubMed, NCBI, NDSS, PMID.

Types of Diabetes
Type-1: This type is an autoimmune disease in which your immune system attacks and destroys insulin-producing cells in your pancreas for unknown reasons. Up to 10% of people who have diabetes have Type 1. It's usually diagnosed in children and young adults, but it can develop at any age.
Type-2: With this type, your body doesn't make enough insulin and/or your body's cells don't respond normally to the insulin (insulin resistance). This is the most common type of diabetes. It mainly affects adults, but children can have it as well.

Gestational Diabetes: This type develops in some people during pregnancy. Gestational diabetes usually goes away after pregnancy. However, if you have gestational diabetes, you're at a higher risk of developing Type 2 diabetes later in life.



Regional Overview

The diversity of socioeconomic and geographical parameters, prevalence, associated death, and health expenditure may all be used to assess the Global Perspective. Most diabetics reside in less developed and economically disadvantaged parts of the world. A shift in lifestyle in urban and rural regions, has resulted to an increase in obesity. "Diabetes has taken precedence in this region" and others. Diabetes affects 38.6 million individuals in this region, with the number anticipated to climb to over 50 million by 2035. The US had the highest number of diabetics, at 24.4 million.

Classification of Diabetes Drugs

Metformin: A first-line treatment that lowers glucose production in the liver and helps the body respond to insulin better.

Sulfonylureas: Stimulate the pancreas to release more insulin.

Meglitinides: Also stimulate insulin release, but with a shorter duration of action than sulfonylureas.

Thiazolidinediones (TZDs): Increase the body's sensitivity to insulin.

DPP-4 inhibitors: Help the body produce more insulin and reduce the liver's glucose production by protecting incretin hormones.

SGLT2 inhibitors: Cause more sugar to be removed from the body through urine.

Alpha-glucosidase inhibitors: Slow the digestion of carbohydrates.

Dopamine agonists: Used in some cases to help lower blood glucose.

Injectable medications

Insulin: A fundamental treatment for type 1 diabetes, and a common option for type 2 diabetes when other medications aren't enough. It is delivered via syringe, pen, or pump.

Symptoms

Increased thirst (polydipsia) and dry mouth, Frequent urination, Fatigue. Blurred vision.

Slow-healing sores or cuts, Frequent skin and/or vaginal yeast infections.

Diagnostics of Diabetes Mellitus

Four diagnostic tests for diabetes are currently recommended, including measurement of fasting plasma glucose after 75 g oral glucose tolerance test [OGTT]; HbA1c; and random blood glucose in the presence of signs and symptoms of diabetes. People with fasting plasma glucose values of 7.0 mmol/L [126 Mg/ dl], 2-h post load plasma glucose 11.1 mmol/L [200 mg/dl], HbA1c 6.5% [48 mmol/mol]; or a random blood glucose 11.1 mmol/L [200 mg/dl] in the presence of signs and symptoms are considered to have diabetes. If elevated values are detected in asymptomatic people, repeat testing, preferably with the same test, is recommended as soon as practicable on subsequent day to confirm the diagnosis.

Treatment

Blood Sugar Monitoring: Monitoring your blood sugar (glucose) is key to determining how well your current treatment plan is working. It gives you information on how to manage your diabetes on a daily — and sometimes even hourly — basis. You can monitor your levels with frequent checks with a glucose meter and finger stick and/or with a continuous glucose monitor (CGM). You and your healthcare provider will determine the best blood sugar range for you.

Oral Diabetes Medication: Oral diabetes medications (taken by mouth) help manage blood sugar levels in people who have diabetes but still produce some insulin — mainly people with Type 2 diabetes and prediabetes. People with gestational diabetes may also need oral medication. There are several different types. Metformin is the most common.

Insulin: People with Type 1 diabetes need to inject synthetic insulin to live and manage diabetes. Some people with Type 2 diabetes also require insulin. There are several different types of synthetic insulin. They each start to work at different speeds and last in your body for different lengths of time. The four main ways you can take insulin include injectable insulin with a syringe (shot), insulin pens, insulin pumps and rapid-acting inhaled insulin.

Diet: Meal planning and choosing a healthy diet for you are key aspects of diabetes management, as food greatly impacts blood sugar. If you take insulin, counting carbs in the food and drinks you consume is a large part of management. The amount of carbs you eat determines how much insulin you need at meals. Healthy eating habits can also help you manage your weight and reduce your heart disease risk.

Exercise: Physical activity increases insulin sensitivity (and helps reduce insulin resistance), so regular exercise is an important part of management for all people with diabetes.

Feedback

We went to hospital visit to collect information about diabetes from diabetic patients. The collect information given below;

Patient name	**N. Rajayya**	**L. Sowjanya**	**K. Madhuri**	**G. Laxmi**	**Ch. Durga rao**
Age	60	32	36	75	43
Gender	M	F	F	F	M
Weight	70kg	55kg	60kg	60kg	57kg
Pulse [120/80]	140/90	110/70	140/90	120/80	130/80
Temperature	94F	96F	94F	94F	98F
High blood pressure	Yes	No	Yes	No	No
High cholesterol	Yes	No	Yes	No	No
Diabetes	Yes	Yes	Yes	Yes	Yes
Bleeding disorder	No	No	No	No	No
Allergies	No	Yes	No	Yes	No
Symptoms	Blurred vision	Urination	Headache	Weakness	Urination
Type of diabetes	Type-1	Type -2	Type -1	Type -1	Type-2
Family histories of diabetes	Yes	Yes	No	Yes	no
Treatment	Insulin	Insulin	Insulin	Insulin	Insulin

Conclusion

Diabetes has been associated with significant financial loss for the families that are affected. It has also been associated with severe complications which could leads to death. T1DM and T2DM are the two types of diabetes mellitus. The former is more prevalent among children, whereas the latter is more prevalent among adults. However, there are risk factors that have been identified in children that could lead to the development of T2DM and have a negative impact on their health. Diabetes is known to cause other severe complications in patients, resulting in even more misery and premature death. Individuals' chances of developing diabetes are also affected by their race, ethnicity and lifestyle. Perhaps this is related to the social and economic factors among these races. In people suffering from this disease, fortunately, interventions as well as treatment options are available.

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