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UNDERSTANDING DIABETES: TYPES, SYMPTOMS AND MANAGEMENT

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ABSTRACT

Diabetes is a chronic health condition that affects millions of people worldwide. Characterized by elevated blood sugar levels, diabetes requires careful management to prevent complications and maintain overall well-being. In this article, we will explore the different types of diabetes, common symptoms, and effective management strategies.

Diabetes mellitus is a chronic metabolic disorder characterized by hyperglycaemia resulting from defects in insulin secretion, insulin action or both. It is associated with acute complications such as ketoacidosis and hypoglycaemia, as well as long-term complications affecting the eyes, kidneys, feet, nerves, brain, heart and blood vessels.

Presentation of Diabetes Mellitus

Type 1 diabetes:

Patients present at a young age (usually their teens or twenties, but earlier presentation may also occur) with rapid onset of severe symptoms, in particular thirst, polyuria and weight loss. Blood glucose levels are high and ketones often present in the urine. If treatment is delayed, diabetic ketoacidosis (dka) and death may follow. The response to insulin therapy is dramatic and gratifying. Misclassification of patients as “type 1” is probably relatively common and being treated with insulin is not the same as having type 1 diabetes?

Type 2 diabetes:

Most patients present with the classical symptoms of diabetes, including polyuria, Polydipsia and polyphagia. Additionally, some patients present with sepsis, and/or diabetic coma (hyperosmolar non-ketotic states). A minority is asymptomatic and is therefore identified at screening. The patients usually do not seek early Medical attention because of the insidious onset of the disease and therefore May Present at diagnosis with features of diabetic complications, including visual Difficulties from retinopathy, pain and/or tingling in the feet from neuropathy, Foot ulcerations, impotence and stroke. Some elderly Type 2 patients present with Hyperosmolar non-ketotic coma that has a high mortality.

Gestational diabetes:

Gestational diabetes mellitus (gdm) is, as the name suggests, diabetes that arises.in pregnancy. It also reverts to metabolic and clinical normality post-partum, though relative risks of later type 2 diabetes is between 7- 13 times high in women with gestational diabetes compared to normo-glycaemic ones. Therefore, gdm must be distinguished from pre-existing diabetes in women who become pregnant. The particular importance of gdm is that it is associated with a poor pregnancy outcome, especially if unrecognized and untreated. Particular adverse effects include, eclampsia, birth difficulties, intra-uterine growth retardation, foetal macrosomia, neonatal hypoglycaemia and respiratory distress.

Other specific types:

- Diabetes as part of other Endocrine syndromes
- Drug Induced diabetes
- pancreatic disease

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- Monogenic diabetes; previously referred to as Maturity Onset Diabetes of the Young (MODY).

Diagnosis and classification

Diagnosis:

In the majority of people presenting with the classical symptoms of diabetes, The diagnosis of diabetes is straightforward. However, it may pose a problem for Those with a minor degree of hyperglycaemia, and in asymptomatic subjects. In These circumstances, two abnormal blood glucose results on separate occasions Are needed to make the diagnosis. If such samples fail to confirm the diagnosis it will usually be advisable to maintain surveillance with periodic retesting until the Diagnostic situation becomes clear. The clinician should take into consideration.

Additional risk factors for diabetes before deciding on a diagnostic or therapeutic Course of action. The diagnosis of diabetes must be confirmed biochemically prior to initiation of Any therapy,

- The presence of symptoms of hyperglycaemia, such as polyuria, Polydypsia, pruritus vulvae, lethargy, loss of weight and a random Capillary whole blood glucose equal or above 11.1 mmol/L

Or

- A fasting capillary whole blood glucose >6.1 mmol/L or more confirms the diagnosis of diabetes.

In asymptomatic subjects a single abnormal blood glucose result is inadequate to make a diagnosis of diabetes. The abnormal value must be confirmed at the earliest possible date using any of the following: fasting or random blood sample on two separate occasions or a 75 g oral glucose tolerance test.

For clinical purposes the diagnosis of diabetes should always be confirmed by repeating the test on another day, unless there is unequivocal hyperglycaemia with acute metabolic decompensation or obvious symptoms. People with impaired glucose tolerance or impaired fasting glycaemia should be retested after 1 year. The classification of diabetes has been revised by the WHO and is based on aetiology.

Type 1 diabetes:

Results from destruction most commonly autoimmune, of the pancreatic betacells. Insulin is required for survival.

Type 2 diabetes:

Characterized by insulin resistance and/or abnormal insulin secretion, either of which may predominate, but both of which are usually present. It is the most

common type of diabetes.

Other specific types of Diabetes:

These are less common and include genetic disorders, infections, and diseases of the exocrine pancreas, endocrinopathies or as a result of drugs.

Gestational diabetes:

Appearing or recognized for the first time in pregnancy.

PREVENTION OF DIABETES:

In view of the significant rise in the prevalence of diabetes in Kenya its well recognized morbidity, premature mortality and increasing health costs, prevention is of paramount importance. Public and professional awareness of the risk factors for and the symptoms of diabetes are an important step towards its control and prevention.

Diabetes prevention can be categorized into two groups:

- Primary prevention
- Secondary prevention

Primary Prevention:

Primary prevention identifies and protects individuals at risk from developing diabetes. It therefore has an impact by reducing both the need for diabetes care and the need to treat diabetes-related complications. While there is yet no conclusive evidence to suggest that type 1 diabetes can be prevented, primary prevention of type 2 diabetes is potentiallypossible.Lifestyle changes aimed at weight control and increased physical activity

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are important objectives in the prevention of type 2 diabetes. The benefits of reducing body weight and increasing physical activity are not confined to type 2 diabetes;

They also play a role in reducing heart disease, high blood pressure, etc.

The components of lifestyle modification and their aims should include, but not

Be limited to, the following list:

- Weight loss of 5%-10%.
- Reduction in fat intake < 30% of calories.
- Reduction in saturated fat intake < 10% of calories.
- Increase in fibre intake > 15 g/1000 kcal (traditional African diets are high in fibre content).

Secondary prevention:

This involves the early detection and prevention of complications, therefore reducing the need for treatment. Action taken early in the course of diabetes is more beneficial in terms of quality of life and is more cost-effective, especially if this action can prevent hospitalization.

There is now conclusive evidence that good control of blood glucose levels can substantially reduce the risk of developing complications and slow their progression in all types of diabetes. The management of high blood pressure and raised blood lipids (fats) is equally important. Health workers need not only provide treatment and care for people with diabetes but also play a major role in active prevention of diabetes through health promotion and public health education.

Obesity:

Over 70% of the people with Type 2 diabetes are either overweight or obese. Being Overweight/obese significantly increases the risk of morbidity and mortality from Type 2 diabetes and its co-morbidities. Successful reduction has a positive impact on these outcomes. Obesity is a major component of the metabolic syndrome.

Measurements for evaluation of obesity are:

- Calculation of overall obesity, the body mass index (BMI).
- Determination of central fat distribution by measurement of waist circumference.
- BMI represents overall fatness. It is derived from the patient's weight in kilograms (kg) and the height in meters (m) from the following

Formula:

BMI= Weight (kg)/height (m) 2

* **Waist circumference is more reliable in defining cardiovascular risks in Diabetes**

Clinicians frequently use the following classification of BMI

Clinical Classification of BMI:

Classification of BMI	-	(kg/m2)
Underweight	-	<18.5
Normal weight	-	18.6-24.9
Overweight	-	25-29.9
Obesity (class 1)	-	30-34.9
Obesity (class 2)	-	35-39.9
Extreme obesity (class3	-	>40

The pattern of distribution of the fat in the body (whether mostly peripherally or entrally distributed) is assessed by the use of the waist hip ratio (WHR):WHR= waist circumference (cm)/Hip circumference (cm). Waist circumference (WC) should be measured midway between the lower rib margin and the iliac crest, while the hip circumference is taken as the largest circumference of the hip. Waist circumference is now recognized as a better indicator of central or upper-body obesity than the WHR, the upper limits being 102 cm and 88 cm in men and women, respectively.

Common Symptoms:

Frequent Urination: Excess sugar in the blood leads to increased urination.

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Excessive Thirst: Dehydration resulting from frequent urination triggers thirst.

Unexplained Weight Loss: In Type 1 diabetes, the body loses weight as it breaks down muscle and fat for energy.

Fatigue: Insufficient insulin prevents cells from getting the energy they need, leading to fatigue.

Blurred Vision: High blood sugar levels can affect the eyes and cause vision problems.

Management Strategies:

Medication:

1. Insulin injections or oral medications help regulate blood sugar levels.
2. Type 1 diabetes typically requires insulin therapy, while Type 2 diabetes may involve various oral medications.

Healthy Eating:

1. Balanced diet rich in fruits, vegetables, whole grains, and lean proteins can help manage blood sugar levels.
2. Monitoring carbohydrate intake is crucial, as they directly impact blood sugar.

Regular Exercise:

1. Physical activity improves insulin sensitivity and helps maintain a healthy weight.
2. Individuals with diabetes should engage in regular, moderate exercise, such as walking, 2) swimming, or cycling.

Blood Sugar Monitoring:

Regular monitoring using glucose meters helps individuals track their blood sugar levels and make informed decisions about medication, diet, and exercise.

Lifestyle Modifications:

Quitting smoking and limiting alcohol intake are essential for overall health and diabetes management.

Regular Check-ups:

Routine medical check-ups and consultations with healthcare professionals help monitor diabetes-related complications and adjust treatment plans as needed.

Conclusion:

Living with diabetes requires a holistic approach, involving medication, lifestyle adjustments, and regular monitoring. By understanding the types, recognizing symptoms, and implementing effective management strategies, individuals with diabetes can lead fulfilling lives while minimizing the risk of complications. Seeking guidance from healthcare professionals and staying informed about advancements in diabetes management are essential steps toward maintaining optimal health.

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