

DIABETES MELLITUS

Meaning

It is a metabolic disorder characterized by decreased ability or total inability of the tissues to utilize CHO (glucose). This results in shifts and disturbances in the fat and protein metabolism and in water and electrolyte balance. This disorder is due to absence to insulin, its deficiency or ineffectiveness – the hormone is produced by the beta cells of islet of langerhans in the pancreas.

Classification of Diabetes

- Type 1 – Insulin Dependent Diabetes Mellitus (IDDM)
- Type 2 – Non Insulin Dependent Diabetes Mellitus (NIDDM)
- Type 3 – Malnutrition Related Diabetes Mellitus (MRDM)
- Impaired Glucose Tolerance (IGT)
- Gestational Diabetes

Type 1 – Insulin Dependent Diabetes Mellitus (IDDM)

- More seen in children and adolescents than adults and elderly.
- In this type of diabetes there is little or no production of insulin by β -cells of the pancreas. Hence the young individuals require daily insulin injections.
- Since various types of insulin are available, the carbohydrate content of the diet has to be adjusted accordingly.

Type 2 – Non Insulin Dependent Diabetes Mellitus (NIDDM)

- Mostly seen in overweight peoples.
- The problem is caused by insulin resistance.
- Obesity is the main cause of insulin resistance. Weight reduction, diet and exercise can help to decrease the insulin resistance.
- Anti-diabetic drugs can also be useful.

Type 3 – Malnutrition Related Diabetes Mellitus (MRDM)

- Usually seen in the young mostly between the age of 15-30 years. People look thin, lean and malnourished
- In this kind of diabetes pancreas does not produce enough insulin hence these individuals require insulin.
- It has also been seen that when insulin is discontinued, the complications are lesser than type 1 diabetes.

Impaired Glucose Tolerance (IGT)

- Glucose tolerance is assessed by taking the fasting blood sugar value. An oral glucose load of 75 gms glucose is administered and blood sugar value checked again after 1 ½ -2 hrs. The value of sugar obtained is checked against the normal or fasting value. If values are above normal, then we describe the conditions as impaired glucose tolerance.
- In this type, the individuals are free from the symptoms of diabetes but they could develop diabetes at a later stage if they are unable to control the diet and avoid obesity.
- Regular exercise also help in maintaining the blood sugar level.

Gestational Diabetes

- When a pregnant women develops diabetes, it is known as gestational diabetes. It occurs in only 1% women.
- Pregnant women who have a risk of diabetes because of family history or bad obstetrics history should be screened for diabetes.
- Pregnant mother develop diabetes related complications and after delivery can also continue with the diabetic conditions.

ETIOLOGY

Diabetes may develop due to any of the following reasons.

- Genetic factor
- Age
- Gender
- Dietary factors
- Infections
- Increased catabolism
- Stress
- Imbalance of hormones

Factors Affecting normal blood sugar level

Blood-Normal/Fasting Sugar Level

Factors Increasing Blood Sugar Level	Factors Decreasing Blood Sugar Level
1. Hormone	1. Exercise
- Anterior Pituitary	2. Insulin
- Thyroid	3. Liver Storage (Glycogen)
- Adrenal	4. Fat formation
2. Liver Glycogen Breakdown	5. Kidney threshold
3. Intestinal Sugar Absorption	
4. Protein Catabolism (breakdown)	

Symptoms

- Polyurea – excessive urinary output especially at night.
- Polydipsea – Excessive thirst due to loss of water from the body.
- Polyphagia – Increased appetite, urge for sweet items.
- Loss of weight – In spite of eating more.
- Lassitude and lack of energy – Untreated diabetes can cause easy tiredness, drowsiness and even coma at later stage.
- Pruritis vulvae – Irritation of genitalia caused by local deposition of sugar from urine.

- Paraesthesia – A tingling sensation felt in the hands and feet.
- Blurring of vision – Excess sugar deposits on the eye lens causing refraction changes resulting in the blurring of vision.
- Delay in wound healing and minor infections – Lack of nutrients to the wound delays wound healing. Minor recurrent infections occur.

COMPLICATIONS

Acute Complications :

1. Hypoglycemia or low blood sugar
2. Hyperglycemia or high blood sugar

Chronic complications :

1. Atherosclerosis
2. Nephropathy
3. Retinopathy
4. Neuropathy
5. Infections

Objectives of MNT

- Supply optimum nutrition to maintain good health
- Provide calories for maintaining ideal weight and allowing for normal growth and development
- Maintain blood sugar control
- Achieve optimum blood lipid levels
- Minimize acute and chronic complications of diabetes mellitus.