

Society



{ S O C I E T Y S A Y S S O }

SUGAR Alert



WITH more than 300 million people suffering from diabetes globally, this entity cannot be considered anything less than an epidemic. With the current trend of increasing incidence, the total number of people with diabetes is going to touch more than 500 million by 2025, according to Dr Deepak Chaturvedi, MD (Medicine) Metabolic Physician, Endocrinologist, Diabetologist, Anti-aging Specialist and Bariatrician. For a matter of understanding, diabetes may be considered as the body's inability to utilise blood sugar and hence facing the consequences of high blood sugar levels (glucotoxicity).

Diabetes should not be considered as a single clinical entity. With the spectrum of metabolic, biochemical, endocrine and other systemic involvement, diabetes needs to be taken as a 'Spectrum of Diseases'.

The metabolic effect of diabetes does not restrict to only at glucose regulation abnormalities. It causes adverse fat (lipids) and proteins metabolism, leading to deleterious effects of the body by lipotoxicity and proteins loss.

Broadly, there are two groups of diabetes mellitus:

- Insulin dependent diabetes (Type 1 Diabetes)
- Non-insulin dependent diabetes (Type 2 Diabetes)

Ultimately, all diabetics lead to the state of insulin dependence.

Conventionally, Type 1 diabetics were lean and Type 2 diabetics were obese. But now, a big group of lean people with diabetes type 2 has been identified.

The causes of diabetes are multi-factorial:

- Genetic/Hereditary
- Lifestyle
- Diet
- Autoimmunity
- Infections
- Inflammation
- Drug induced (oral contraceptive pills)

A sedentary lifestyle with/without a high sugar/fat diet increases the potential of developing diabetes multifold in both genetically vulnerable and non vulnerable population. Traditionally, diabetes pathology is related with hyperglycemia because of insulin deficiency/insulin resistance. But now, other hormones are also implicated in the pathogenesis of diabetes and its complications.

The important extra insulin hormones implicated in diabetes are glucagon, cortisol, DHEA, testosterone, growth hormone, estrogen, progesterone, thyroid and catecholamines—these are directly or indirectly associated with diabetes outcomes.

High testosterone levels in women and low testosterone levels in men are associated with adverse outcomes in diabetes mellitus and metabolic syndrome. Similarly, low estradiol levels in women and high estradiol levels in men are associated with adverse outcomes.

The other modern day epidemic, obesity, is also associated as bidirectional with diabetes mellitus type 2. Obesity increases the risk of insulin resistance/Type 2 diabetes mellitus and vice versa. More importantly, the obese Type 2 diabetes mellitus patients have more complications in terms of cardiac and endocrine health.

Diabetes mellitus is a chronic, progressive spectrum of diseases which involves almost every organ of the body. It's one of the most common causes of premature aging. In a natural course of the uncontrolled diabetes, organs like the kidneys (nephropathy/ chronic kidney disease), eyes (retinopathy/ early cataract), nervous system (neuropathy),



What is Gestational Diabetes Mellitus (GDM)?

Some physiological alteration occurs in the carbohydrate metabolism in pregnancy. A human pregnancy is characterised by increased insulin resistance, which helps to ensure a steady glucose supply to the foetus. Hormones like human placental lactogen, estrogen and progesterone contribute to this state. If these alterations are exaggerated, then there is abnormal glucose tolerance, leading to gestational diabetes.

Alternatively, pregnancy may unmask an underlying pre-diabetic state. Gestational diabetes can be diagnosed by a glucose tolerance test (GTT). This can be done during the first visit and then repeated on 24 weeks and then 32-34 weeks. Two hours GTT of more than 140mg/dl or above indicates GDM. Obesity, overweight, family history of diabetes are risk factors for developing GDM. A high occurrence of this is found in Asians.

How does it affect the mother and the baby?

1. Excessive foetal growth (big baby).
2. Obstructed labour.
3. Increased chances of developing gestational hypertension.
4. Increased mortality rate of mother and the foetus.
5. Increased chances of developing overt diabetes in mother (almost 50 per cent).
6. Chances of respiratory distress syndrome in baby.
7. Increased risk of abortions.

Is there any way to avoid it?

1. Weight control.
2. Maintaining calorie intake.
3. Small frequent meals during pregnancy.
4. Avoid obesity or being overweight before conception.
5. Stay active throughout pregnancy.
6. Pre-conception screening and counselling.

How is it treated?

1. Calorie control: 30-35 calories/kg of present weight.
2. 50-55 per cent carbohydrate, 20-25 per cent proteins and rest in the form of fat.
3. Split the daily meals into five to six portions.
4. Insulin therapy whenever needed.
5. Normal physical activity, plus graduated daily exercise like walking.
6. Monitor body weight, blood pressure, haemoglobin, glycosylated haemoglobin, blood sugar and other parameters.
7. Foetal development assessment by ultra sonography.
8. Educate the patient and the family about GDM.
9. It needs to be a team approach, comprising a gynaecologist, diabetologist, neonatologist, trained nurse and an educator.

cardiovascular system (coronary artery disease, ischemic heart disease, cardiomyopathy), skin (acanthosis, pigmentation), nails (fungal infections), gastro-intestinal system (gastroparesis, altered bowel), sexual health (erectile dysfunction, low libido, anorgasmia) and almost all other organs are involved.

The current trends of managing diabetes focuses on tight blood sugar control by medications, life style modification, exercise, dietary modification, sleep management and stress reduction. Now, we have started to look in the other potential hormonal and metabolic implications of diabetes and started focusing on fixing them.

Once diagnosed with diabetes, one should not leave hope. The current medical world is working very hard to give hope to people living with diabetes.

Key to success in diabetes management:

1. Be vigilant about blood sugar (fasting blood sugar, Post Prandial (PP) blood sugar, glycosylated haemoglobin).
2. Regular screening for diabetes complications (blood cholesterol, kidney function test, liver function test, nerve testing, complete eye check up, complete cardiac work-up, other hormones evaluation, sex hormone-binding globulin—SHBG).
3. Control blood cholesterol.
4. Modify lifestyle.
5. Healthy eating.
6. Yoga, meditation.
7. Sleep/stress management.
8. Avoid smoking/alcohol.
9. Take medicines on time.
10. Follow up with your doctors very regularly.

Diabetes can be prevented to some extent. Its complications can be delayed or prevented if the above points can be followed.

Instituting early insulin therapy in newly diagnosed diabetes patients is a proven measure to delay/prevent the complications of diabetes. The insulin therapy needs to be closely supervised and all the measures need to be taken to prevent any episode of hypoglycemia.