



“A Review Article on Diabetes Treated by Ayurveda”

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ABSTRACT: -

Type 1 diabetes mellitus (T1DM), also known as autoimmune diabetes, is a continual disease characterised through insulin deficiency due to pancreatic β -mobile loss and leads to hyperglycaemia. Although the age of symptomatic onset is normally during childhood or youth, signs and symptoms can now and again develop much later. Although the aetiology of T1DM is not completely understood, the pathogenesis of the disorder is concept to involve T mobile-mediated destruction of β -cells. Islet-concentrated on autoantibodies that focus on insulin, 65 kDa glutamic acid decarboxylase, insulinoma-associated protein 2 and zinc transporter eight — all of which might be proteins associated with secretory granules in β -cells — are biomarkers of T1DM-related autoimmunity which are observed months to years before symptom onset, and can be used to identify and take a look at people who are liable to developing T1DM. The kind of autoantibody that looks first relies upon at the environmental cause and on genetic elements. The pathogenesis of T1DM may be divided into three tiers relying on the absence or presence of hyperglycaemia and hyperglycaemia-associated symptoms (such as polyuria and thirst). A remedy isn't always available, and patients depend upon lifelong insulin injections; novel processes to insulin remedy, together with insulin pumps, non-stop glucose monitoring and hybrid closed-loop systems, are in development. Although extensive glycaemic manipulate has decreased the incidence of microvascular and macrovascular complications, most of the people of patients with T1DM are still developing these headaches. Major research efforts are had to reap early prognosis, prevent β -mobile loss and broaden higher remedy alternatives to improve the pleasant of life and analysis of these affected.

1. Introduction: -

Diabetes mellitus (DM) might be one of the oldest illnesses recognised to guy. It was first said in Egyptian manuscript about 3000 years ago.¹ In 1936, the difference among type 1 and kind 2 DM turned into genuinely made.² Type 2 DM was first defined as a factor of metabolic syndrome in 1988. Three Type 2 DM (previously known as non-insulin structured DM) is the maximum not unusual form of DM characterised through hyperglycemia, insulin resistance, and relative insulin deficiency.⁴ Type 2 DM consequences from interaction between genetic, environmental and behavioral risk elements. People residing with kind 2 DM are extra susceptible to diverse styles of each brief- and lengthy-term complications, which frequently result in their premature dying. This tendency of elevated morbidity and mortality is visible in sufferers with kind 2 DM because of the commonness of this kind of DM, its insidious onset and overdue popularity, mainly in resource-bad developing nations like Africa.

Epidemiology

It is estimated that 366 million people had DM in 2011; by 2030 this would have risen to 552 million.⁸ The quantity of human beings with type 2 DM is growing in each united states with 80% of human beings with DM dwelling in low- and center-earnings nations. DM prompted 4.6 million deaths in 2011.⁸ It is expected that 439 million people could have kind 2 DM with the aid of the yr 2030.⁹ The incidence of kind 2 DM varies considerably from one geographical area to the alternative due to environmental and life-style risk factors. Literature search has shown that there are few information available on the superiority of kind 2 DM in Africa as a whole. Studies examining information tendencies inside Africa factor to proof of a dramatic growth in occurrence in each rural and concrete putting, and affecting both gender equally. The majority of the DM burden in Africa seems to be type 2 DM, with much less than 10% of DM instances being kind 1 DM.¹¹ A 2011 Centre for Disease Control and Prevention (CDC) report estimates that DM influences about 25.8 million people in the US (7.8% of the population) in 2010 with 90% to 95% of them being kind 2 DM.¹² It is predicted that the superiority of DM in adults of which type 2 DM is becoming outstanding will growth in the subsequent a long time and lots of the increase will arise in developing nations wherein the general public of patients are aged between 45 and sixty four years. It is projected that the latter will same or maybe exceed the previous in growing international locations, thus culminating in a double burden due to the modern fashion of transition from communicable to non-communicable diseases.

Lifestyle, Genetics, and Medical Conditions

Type 2 DM is due in the main to life-style factors and genetics.¹⁵ A wide variety of way of life factors are recognised to be important to the development of kind 2 DM. These are physical inactivity, sedentary life-style, cigarette smoking and generous consumption of alcohol. Sixteen Obesity has been discovered to make contributions to approximately fifty five% of cases of type 2 DM.¹⁷ The expanded rate of childhood weight problems among the Nineteen Sixties and 2000s is thought to have brought about the growth in type 2 DM in children and children.¹⁸ Environmental pollutants may

additionally make a contribution to the current increases in the price of type 2 DM. A susceptible wonderful correlation has been determined between the concentration in the urine of bisphenol A, a constituent of a few plastics, and the prevalence of kind 2 DM.¹⁹

There is a robust inheritable genetic connection in kind 2 DM, having loved ones (specifically first diploma) with type 2 DM increases the dangers of growing type 2 DM significantly. Concordance among monozygotic twins is near one hundred%, and about 25% of these with the sickness have a circle of relatives records of DM.²⁰ Recently, genes observed to be appreciably related to developing kind 2 DM, include TCF7L2, PPARG, FTO, KCNJ11, NOTCH2, WFS1, CDKAL1, IGF2BP2, SLC30A8, JAZ F1, and HHEX. KCNJ11 (potassium inwardly rectifying channel, subfamily J, member 11), encodes the islet ATP-touchy potassium channel Kir6.2, and TCF7L2 (transcription aspect 7- like 2) regulates proglucagon gene expression and consequently the manufacturing of glucagon-like peptide-

1.21 Moreover, obesity (which is an unbiased threat element for type 2 DM) is strongly inherited.²² Monogenic bureaucracy like Maturity-onset diabetes of the younger (MODY), constitutes up to 5% of instances.²³ There are many clinical situations which could probably supply upward push to, or exacerbate kind 2 DM. These encompass weight problems, hypertension, improved ldl cholesterol (blended hyperlipidemia), and with the situation frequently termed metabolic syndrome (it's also called Syndrome X, Reaven's syndrome).²⁴ Other reasons encompass acromegaly, Cushing's syndrome, thyrotoxicosis, pheochromocytoma, persistent pancreatitis, cancer, and pills.²⁵ Additional factors found to growth the risk of type 2 DM consist of getting older,²⁶ high-fats diets, and a less energetic life-style.

Pathophysiology

Type 2 DM is characterised by using insulin insensitivity due to insulin resistance, declining insulin manufacturing, and eventual pancreatic beta-cell failure.^{28,29} This results in a decrease in glucose delivery into the liver, muscle cells, and fats cells. There is an boom inside the breakdown of fat with hyperglycemia. The involvement of impaired alpha-cell feature has these days been identified inside the pathophysiology of type 2 DM.³⁰ As a end result of this dysfunction, glucagon and hepatic glucose levels that rise for the duration of fasting aren't suppressed with a meal. Given insufficient ranges of insulin and elevated insulin resistance, hyperglycemia consequences. The incretins are essential intestine mediators of insulin launch, and inside the case of GLP-1, of glucagon suppression. Although GIP interest is impaired in people with type 2 DM, GLP-1 insulinotropic effects are preserved, and accordingly GLP-1 represents a doubtlessly beneficial healing option.³⁰ However, like GIP; GLP-1 is swiftly inactivated by way of DPP-IV in vivo. Two healing tactics to this trouble were advanced: GLP-1 analogues with improved 1/2-lives, and DPP-IV inhibitors, which prevent the breakdown of endogenous GLP-1 in addition to GIP.³⁰ Both training of retailers have shown promise, with capacity not handiest to normalize fasting and postprandial glucose tiers but also to improve beta-mobile functioning and mass. Studies are ongoing on the function of mitochondrial disorder in the development of insulin resistance and etiology of kind 2 DM.³¹ Also very important is adipose tissue, as endocrine organ speculation (secretion of numerous adipocytokines, i.E., leptin, TNF-alpha, resistin, and adiponectin implicated in insulin resistance and possibly beta-cell disorder).³⁰

A majority of individuals laid low with kind 2 DM are obese, with crucial visceral adiposity. Therefore, the adipose tissue performs a vital role within the pathogenesis of kind 2 DM. Although the foremost idea used to provide an explanation for this link is the portal/visceral hypothesis giving a key position in improved non-esterified fatty acid concentrations, new rising theories are the ectopic fats storage syndrome (deposition of triglycerides in muscle, liver and pancreatic cells). These hypotheses represent the framework for the examine of the interaction among insulin resistance and beta-cellular dysfunction in kind 2 DM in addition to between our obesogenic surroundings and DM hazard in the next decade.³⁰

Diabetes mellitus

usually called diabetes, is a metabolic disorder that reasons excessive blood sugar. The hormone insulin transports sugar from the blood into your cells to be stored or used for electricity.

Without looking after proper food regimen, diabetes can cause a construct-up of sugars in the blood, that could increase the chance of dangerous complications along with stroke and heart diseases. Gradual increase in Diabetes can cause diabetic complications like blindness, kidney failure, and nerve damage. These damages are the end result of harm to small vessels, called microvascular disease. Hyperglycemia, causes to spillage of glucose into the urine, as a result the time period candy urine.

3. Types of Diabetes

Three foremost diabetes can increase TYPE 1, TYPE 2 and GESTATIONAL diabetes.

Type 1 Diabetes

Type 1 is likewise referred to as juvenile diabetes occurs while the frame fails to provide insulin. People affected with type 1 diabetes are insulin-established, which means that they have to take synthetic insulin daily to live alive.

Type 2 Diabetes

Type 2 diabetes influences the manner the frame makes use of insulin, the cells inside the frame do not react to it as effectively as they once did. This is the maximum communal sort of diabetes which has strong links with obesity.

Gestational Diabetes

During being pregnant, girls will be laid low with Gestational Diabetes whilst the frame can become less sensitive to insulin. However, this form of diabetes does no longer arise in all women and usually resolves after giving start.

4. Ayurvedic Diabetes Treatments :

Ayurvedic treatments for diabetes range from internal, herbal medications to purifying panchkarma procedures such as vanamaVirechana, Vasti etc., based on the severity of the condition. These natural remedies are intended to enhance insulin sensitivity of type – 4 glucose receptors thus reducing insulin resistance, and also to enhance insulin secretion and regeneration of beta cells.

Yoga for Diabetes:

Yoga helps in controlling diabetes. This is mainly because Yoga keeps a check on the causes of Diabetes. Stress and obesity are main causes that can lead to Diabetes. Regular yoga practice with meditation reduces stress and slows down the fat accumulation in the body. Pranayama, surya namesake, Bal asana, Vajras Ana, sarvangasana, Hal asana, dhanurasna are few of the postures that are effective.



5. Ayurvedic Treatment for Diabetes at Ayurvedagram:

Customized [Kerala therapies](#) as prescribed by our doctors, regular yoga and physical exercise, individually tailored low carbohydrate diet and low stress level in day-to-day life goes a long way in maintaining normal blood glucose level.

The treatment of diabetes in Ayurveda calls for dietary changes that can help control blood glucose levels. The dietary recommendations suggested for the Ayurvedic treatment for diabetic patients include:

- The food consumed should be astringent or bitter. Bitter gourd, moong, barley are recommended to be included in the diet.
- The diet should include plenty of fruits and vegetables that have rich fiber content.
- Spices like turmeric, cumin, coriander, and cardamom should be used while cooking.
- Instead of eating three heavy meals, 5 or 6 small meals can be eaten to prevent blood sugar level spikes.

The Ayurvedic treatment for Type II Diabetes involves the use of herbal remedies that can help control blood glucose levels. Some of the popular herbs used in diabetes treatment in Ayurveda include:

- **Gymnema** or **Gurmar** is one of the main herbs used to treat diabetes as it has the property of 'destroying sugar' by curbing the craving for sugar.
- **Fenugreek** or **Methi seeds** have high fiber content and it regulates blood sugar levels.
- **Jamun** is a fruit that helps to reduce blood sugar levels. It is one of the potent medicines used in Ayurveda.
- **Neem** and **Tulsi** are two other common herbs that are helpful in treating diabetes as they help to improve insulin management by the body.
- **Giloy** or **Guduchi** is yet another powerful herb that helps manage blood sugar levels and helps to improve general immunity.

There are a variety of tried and tested classical formulations as well as proprietary formulas that can help reverse this metabolic disorder if discovered early. Ayurvedagram offers an authentic ayurvedic approach to help manage diabetes with a dedicated team of ayurvedic experts and counsellors. Reach out to us to know more.

Can diabetes be cured by Ayurveda?

Diabetes is described in Ayurveda as Prameha, and it is essentially a metabolic disorder that is caused by the body's inability to break down glucose. Even though the complete cure of diabetes is debatable, treatment of diabetes in Ayurveda by maintaining healthy blood glucose levels is feasible. Ayurvedic supplements, holistic purification treatments, and remedial massages are given by expert Ayurvedic practitioners to help you lead a healthy lifestyle and control diabetes.

How can I get rid of diabetes permanently?

There is no permanent cure for diabetes but you can control high blood sugar levels by using Ayurvedic remedies. It is recommended by Ayurvedic practitioners to take Ayurvedic tablets and herbal supplements to maintain the body. You can also incorporate healthy practices like avoiding alcohol and smoking, reducing carbohydrates, avoiding consumption of excess oil, and regular exercise to keep diabetes in check.

What is the best treatment for diabetes?

Customized Ayurvedic therapies by Ayuvedagram are great for the treatment of diabetes as they involve herbal supplements, and Panchakarma procedures help in enhancing insulin sensitivity, reduce insulin resistance, and boosts insulin secretion to regenerate beta cells. Treatment of Diabetes in Ayurveda also involves a diet of fruits and vegetables rich in fiber, spices like cumin, coriander, turmeric, and cardamom, eating small meals throughout the day, and consuming herbs like Gymnema to curb sugar cravings, Fenugreek to regular blood sugar levels, neem and Tulsi to enhance insulin management, and Guduchi to manage blood sugar levels by boosting immunity.



Can prediabetes be cured by Ayurveda?

According to Ayurveda, pre-diabetes symptoms include Dantaadeenam malaadhyatwam (decreasing oral hygiene), Paani paadayoho daaha (a burning sensation in the feet and palms), and Chikkanata dehe (a sticky feeling in the whole body). Pre-diabetes symptoms can be controlled through herbal supplements like Tumeric, Amla, neem leaves, curry leaves, and natural Ayurvedic remedies prescribed by your Ayurvedic practitioner.



Which foods are safe for diabetes?

Certain vegetables like cabbage, carrot, broccoli, spinach, onion, garlic, cucumber, lettuce, tomato, radish, and beetroot, and citrus fruits are great for diabetics. You can also consume whole grains, sprouts, chickpeas, and herbal dietary supplements like amla, cinnamon, turmeric, fenugreek, neem, green tea, and aloe Vera to keep blood sugar levels under control. Nevertheless, you are always welcome at Ayurvedagram to consult the experts and get proper and the best treatment of diabetes in Ayurveda

***Management Approaches******a. Prevention***

1. Use of various preparations made from yava (barley), mudga (green gram), old rice, bitter melon, drumstick, methi (fenugreek), patola (snake gourd), pumpkin, cucumber, bitter melon, buttermilk, triphala etc. are beneficial as preventive measures for borderline diabetic patients
2. Dinacharya (daily regimen) and Ritucharya (seasonal regimen)
3. Regular exercise/ increase in calorie consuming activities (Brisk walking, swimming, etc.)
4. Regular use of rasayana drugs (Amalaki rasayana etc.)
5. Restriction in intake of sugar/ sugar products, fried food and dairy products
6. Restriction in the use of different types of wine, excess use of oil, clarified butter, milk, sugarcane products, cakes and the meat of domestic and aquatic animals
7. Avoidance of day sleep and laziness

6. Conclusions

Type 2 DM is a metabolic disease that can be averted through life-style amendment, weight loss program manipulation, and management of obese and obesity. Education of the population remains key to the management of this rising epidemic. Novel drugs are being evolved, but no remedy is to be had in sight for the disease, in spite of new perception into the pathophysiology of the ailment. Management should be tailor-made to enhance the satisfaction of lifestyles of people with kind 2 DM.

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