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Treatment of Diabetes Mellitus in Ayurveda, Homeopathy, Unani and Allopathy

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A B S T R A C T

Diabetes mellitus (DM) is a chronic disease that has ravaged the globe. More than 300 million individuals worldwide are affected by this condition, and the number is growing rapidly because current medical technology has no permanent cure. The current state of nutraceuticals has strengthened patients' trust in the traditional medical system, and the global nutraceutical market is expected to reach $285.0 billion by 2021. The growing use of nutraceuticals in diabetes treatment needs the consolidation of traditional medical knowledge, which can assist researchers in developing new functional foods and nutraceuticals that can either reduce the risk of or cure DM. Furthermore, discussing market-available food products, their active ingredients, and potential health advantages might help patients better understand herbal remedies.

Keywords: Diabetes mellitus (DM), Herbal medicines, Traditional systems, Herbs

Diabetes Mellitus

The metabolic condition that is persistent Has serious social, health, and economic repercussions, diabetes mellitus is a rapidly spreading global issue. 285 million persons worldwide (or around 6.4% of the adult population) were reportedly affected by this illness in 20 I0. In the absence of better treatment or control, this figure is projected to rise to 430 million. The two main causes of the rise are aging and obesity. Furthermore, it has been demonstrated that nearly 50% of alleged diabetics do not receive a diagnosis until 10 years after the onset of the condition, indicating that the true prevalence of diabetes worldwide must be extremely high. This chapter introduces the various forms of diabetes and its associated problems, including heart disease, kidney disease, retinopathy, periodontal disease, nephropathy, somatic and autonomic neuropathy, and diabetic foot. The present management, therapies, and new therapeutics are also covered.

The Egyptians are credited with originally describing diabetes, which is characterized by polyuria and weight loss. However, the term "diabetes mellitus" was first used by the Greek doctor Aretaeus (OM). Diabetes is a Greek term that means "to pass through," and Mellitus is a Latin word that means "honey" (referring to sweetness). With roughly one fatality every ten seconds, diabetes is a major contributor to long-term illness and untimely death. It also claims more lives each year than HIV/AIDS. The onset of global industrialization and the startling growth in obesity has made diabetes a global epidemic. A recent survey estimates that the prevalence of diabetes in adults will rise from 4% in 1995 to 6.4% by 2025, despite the fact that it is very challenging to determine an accurate measure of prevalence due to two main factors: the standard and methods of data collection differ greatly in different parts of the world. In addition, it is predicted to change quickly, rising by 170% from 84 to 228 million in emerging nations and by 42% from 51 to 72 million in developed nations. From 194 million in 2003 to around 380 million in 2025, there will be an increase in the number of adult diabetics worldwide. In 2025, India, China, and the United States will be the nations most impacted by this disease. 2 The presence of a sizable population—nearly 50%—even now is the second and more concerning reason [1].

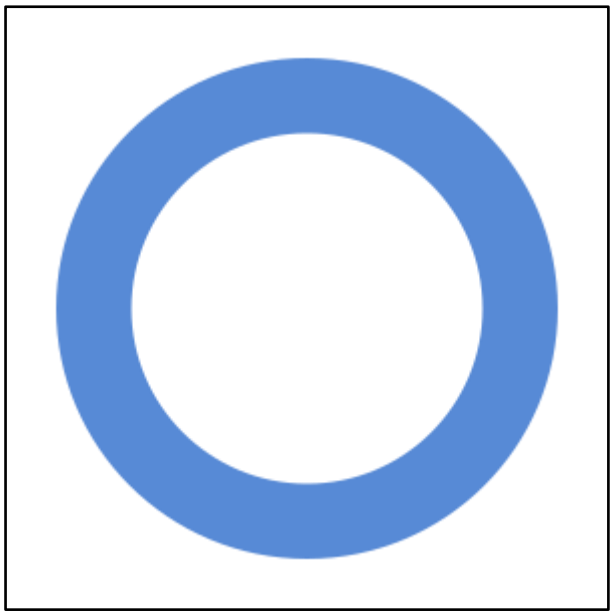

Figure No 1: Universal blue circle symbol for diabetes

Diabetology's pathophysiology

To create and sustain a healthy physiological state, a variety of systems and pathways in the human body work in unison. The capacity of the organism to maintain homeostasis, or a continual steady condition, is at the heart of these activities. The development of an injury or a pathological condition in multiple organs is caused by an aberration of homeostasis. The risk of both major and minor problems is increased when an individual's capacity to control the amount of glucose in their blood is reduced by OM [2].

Glucerogen Regulation

Insulin is a 51-amino acid polypeptide made up of two chains (A and B) joined by disulfide bridges that are released by the B cells of the islet of Langerhans in the pancreas. Prohormone convertases PC I and PC 2 as well as exo-protease carboxypeptidase synthesize insulin from pro-insulin. Insulin and C peptide are produced by the activity of these enzymes.

Two subunits (extracellular) and two f3 subunits (intramembrane), connected by disulfide bonds, make up the tyrosine kinase insulin receptor, which is where insulin binds. The tyrosine kinase insulin receptor's B subunit's autophosphorylation is encouraged by insulin's interaction with the receptor. Insulin instructs the liver to turn extra glucose into glycogen for storage. It also instructs other cells in the body, including adipose and skeletal muscle cells, to absorb more glucose by moving the glucose transporter GLUT4 to the cell surface. This assists in restoring normal glucose levels in the blood. whenever there is a low blood glucose level. Glucagon is produced when the pancreatic cells are stimulated. In order to maintain homeostasis, the liver is signalled by glucagon to release glucose from glycogen stores into the blood. having diabetes

Is a class of metabolic illnesses known as diabetes characterized by persistently high blood sugar (hyperglycaemia) levels? Symptoms frequently include increased thirst and hunger as well as frequent urination. Diabetes can lead to numerous health issues if it is not addressed. Acute complications can result in hyperosmolar hyperglycaemia, diabetic ketoacidosis, or even death. Heart disease, stroke, chronic renal disease, diabetic foot ulcers, eye damage, nerve damage, and cognitive impairment are examples of serious long-term consequences.

Diabetes results from either an insufficient amount of insulin being created by the pancreas or from the body's cells failing to react appropriately to that insulin. Glucose from food must enter cells for energy to be utilized, and insulin is the hormone that facilitates this process. Diabetes mellitus comes in three primary varieties. [3]

Because of the absence of beta cells, type 1 diabetes is brought on by the pancreas' inability to make enough insulin. Diabetes mellitus which is insulin-dependent or juvenile diabetes was the prior names for this kind. A negative autoimmune reaction results in beta cell loss. This autoimmune reaction has an unidentified cause. Despite typically developing in childhood or adolescence, type 1 diabetes can sometimes strike adults.

Insulin resistance, a disease in which cells do not react to insulin as it should, is the precursor to type 2 diabetes. A shortage of insulin may also develop as the condition worsens. Previously, this type was referred to as "adult-onset diabetes" or "non-insulin dependent diabetes mellitus." Although type 2 diabetes is more prevalent in older folks, type 2 diabetes has become more prevalent in younger people as a result of a marked rise in childhood obesity rates. Combining an excessive body weight with insufficient exercise is the most frequent cause.

The third major kind of diabetes, known as gestational diabetes, affects pregnant women who have never had the disease. After delivery, blood sugar levels in women with gestational diabetes typically return to normal. The chance of acquiring type 2 diabetes later in life is increased for women who had gestational diabetes during pregnancy.

Injections of insulin are necessary to treat type 1 diabetes. Maintaining a healthy diet, routine exercise, a normal body weight, and abstaining from tobacco use are all necessary for the prevention and treatment of type 2 diabetes. Treatment options for type 2 diabetes include insulin and/or oral anti-diabetic medications. For those who have the illness, it's crucial to keep their blood pressure under control and maintain

proper foot and eye care. Low blood sugar can be brought on by insulin and some oral medications. Diabetes type 2 patients who are obese and considering weight loss surgery may find it to be a useful treatment. After the baby is born, gestational diabetes usually disappears.

Cause

The six subtypes of diabetes mellitus that fall into these categories include type 1 diabetes, type 2 diabetes, hybrid forms of diabetes, hyperglycaemia first observed during pregnancy, "unclassified diabetes," and "other particular types." Examples of hybrid forms of diabetes include type 2 diabetes with a high risk of ketosis and adult-onset, immune-mediated hybrid diabetes. "Hyperglycaemia originally found during pregnancy" refers to both gestational diabetes and pregnancy-related diabetes mellitus (type 1 or type 2 diabetes first diagnosed during pregnancy). The "other particular types" section has a few dozen potential explanations. Contrary to popular opinion, diabetes can present itself in a variety of ways, and some people may have more than one [4].

Type of diabetes:

Idiopathic diabetes

A distinguishing feature of type 1 diabetes is the loss of the insulin-producing beta cells in the pancreatic islets, which causes an insufficient amount of insulin to be produced. This group also includes immune-mediated and idiopathic diseases. Most cases of type 1 diabetes are immune-mediated, in which a T cell-mediated autoimmune response causes the death of beta cells and, as a result, insulin. 10% of instances of diabetes mellitus in Europe and North America are caused by it. The majority of those affected are in generally good health and healthy weight when the start begins**.** In general, insulin responsiveness and sensitivity are typical, especially early on. Although type 1 diabetes now affects more adults than children, the term "juvenile diabetes" has historically been used to describe it since it frequently develops in youngsters.

The phrase "brittle" diabetes, also known as unstable diabetes or labile diabetes, was historically used to characterize the significant and frequent swings in levels that frequently occur in insulin-dependent diabetes for no obvious reason. However, this phrase should not be utilized because it lacks a biological foundation. Yet erratic and unpredictable high blood sugar levels, the risk of diabetic ketoacidosis, and dangerously low blood sugar levels can all be symptoms of type 1 diabetes. Infection, gastroparesis (which causes irregular dietary carbohydrate absorption), and endocrinopathies (such as Addison's disease) are some additional consequences. Impaired counterregulatory response to low blood sugar is another. Only 1% to 2% of people with type 1 diabetes are thought to experience these occurrences [5].

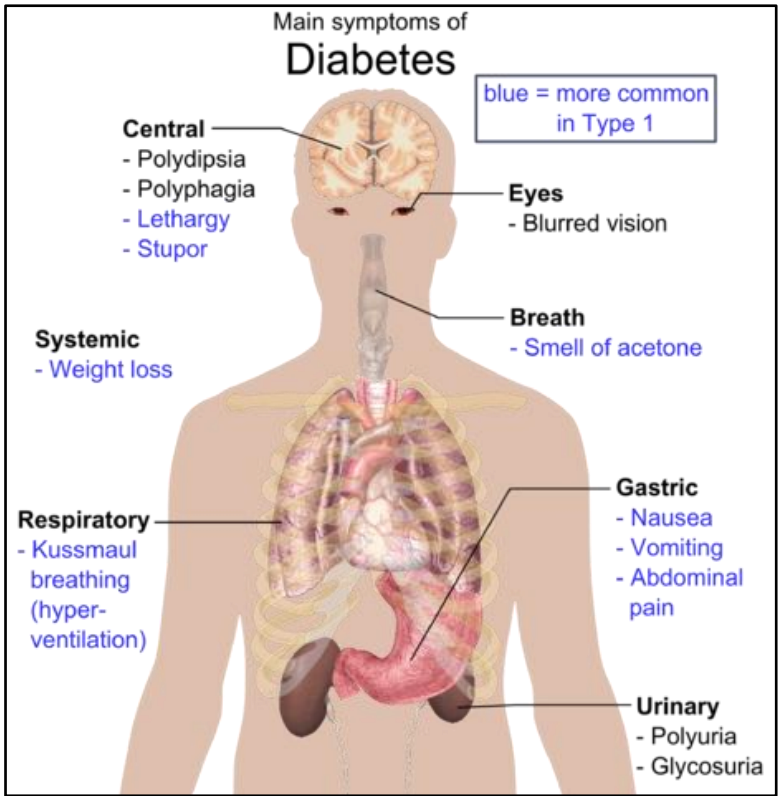

Figure No 2: most significant symptoms of diabetes.

Diabetes type 1 and an autoimmune assault.

Numerous genes, particularly specific HLA genotypes, are known to affect the risk of type 1 diabetes, and this condition is partially hereditary. One or more environmental variables, such as a viral infection or food, can cause the onset of diabetes in those with a genetic predisposition. Numerous viruses have been mentioned, but there isn't enough concrete proof to prove this theory in regard to people as of yet. Although the mechanism is not fully understood, findings point to gliadin, a protein found in gluten, as one dietary element that may contribute to type 1 diabetes development.

A significant percentage of people with type 1 diabetes are diagnosed in their adult years, though it can happen at any age. Type 1 diabetes in adults, which manifests more gradually than in children, is diagnosed as latent autoimmune diabetes of adults (LADA). Since there is a difference, some people refer to this condition as having "type 1.5 diabetes." Initial type 2 diabetes diagnoses for adults with LADA are frequently made based solely on their age rather than any underlying cause.

(2) **Type 2 diabetes**

Insulin resistance and perhaps decreased insulin production are two features of type 2 diabetes. The insulin receptor is thought to play a role in the impaired sensitivity of bodily tissues to insulin. The precise flaws, however, are unknown. Cases of diabetes mellitus with a recognised defect are given a different classification. The most prevalent kind of diabetes mellitus is type 2. Before reaching the criteria for type 2 diabetes, many persons with the disease have signs of prediabetes (impaired fasting glucose and/or impaired glucose tolerance). By making lifestyle adjustments or using drugs that increase insulin sensitivity or decrease the liver's synthesis of glucose, prediabetes can develop into overt type 2 diabetes more slowly or perhaps be prevented.

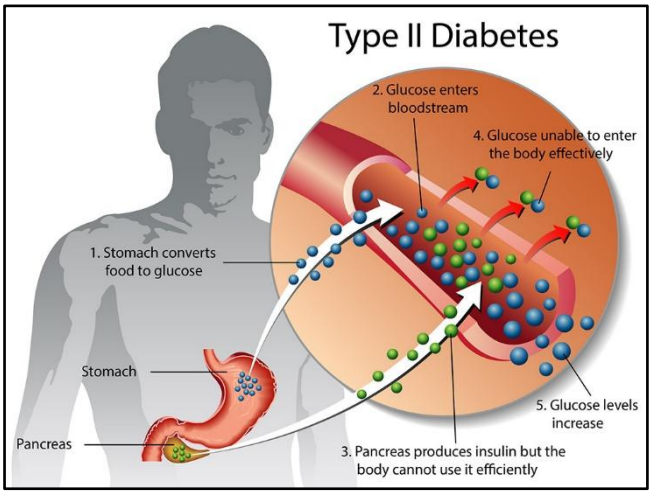

Figure No 3: Insulin and glucose production in type 2 diabetes: Insulin (green dots) is produced in the pancreas, and acts with glucose (blue dots) to regulate energy in the body's cells.

Genetics and lifestyle choices play a major role in type 2 diabetes. Obesity (defined as a body mass index greater than 30), a lack of physical exercise, a poor diet, stress, and urbanisation are among lifestyle variables known to have a role in the onset of type 2 diabetes. People of Chinese and Japanese ancestry have a 30% excess body fat prevalence, people of European and African ancestry have a 60–80% excess body fat prevalence, and people of Pima Indian and Pacific Islander ancestry have 100% excess body fat prevalence. People with a high waist-hip ratio can still be healthy weight.

Dietary elements like drinks with added sugar are linked to a higher risk. The kind of fats consumed is also crucial, with polyunsaturated and monounsaturated fats decreasing risk while saturated and trans fats raising it. Overeating white rice can increase your risk of developing diabetes, especially if you're Chinese or Japanese. Some people may be more susceptible to developing diabetes if they don't exercise.

Diabetic pregnancy

With a combination of relatively insufficient insulin secretion and responsiveness, gestational diabetes is similar to type 2 diabetes in a number of ways. Between 2 and 10% of all pregnancies have it, and it may get better or go away after birth. All expectant women are advised to get tested beginning between 24- and 28-weeks' gestation. Due to the rise in insulin-antagonist hormone levels that take place during the second or third trimester, this is when it is most frequently identified. However, after delivery, it is discovered that 5 to 10% of women with gestational diabetes also have another kind of disease, usually type 2. Although completely curable, gestational diabetes necessitates close medical monitoring throughout the whole pregnancy. The use of insulin may occasionally be necessary, along with dietary modifications and blood glucose monitoring.

Gestational diabetes can harm the mother's or the fetus's health, even if it may only be temporary. The baby is at risk for macrosomia (high birth weight), skeletal muscle anomalies, congenital heart and central nervous system abnormalities, and others. Infant respiratory distress syndrome may be brought on by elevated insulin levels in a fetus's blood that prevents the foetal body from producing surfactants. When red blood cells are destroyed, the blood's bilirubin level can rise. In extreme circumstances, neonatal death may happen, most frequently as a result of insufficient placental perfusion brought on by vascular damage. When placental function declines, labour induction may be necessary. If the foetus is clearly in distress or if there is a higher risk of harm from macrosomia, such as shoulder dystocia, a caesarean section may be performed [6].

Functional-cell genetic defects

Young people with diabetes who develop it later in life have mutated mitochondrial DNA

- genetic issues with insulin action or processing

- Proinsulin conversion issues
- mutations in the insulin gene
- changes to the insulin receptor
- Pancreatic exocrine defects (see Type 3c diabetes, i.e., pancreatogenic diabetes)
- recurring pancreatitis
- Pancreatectomy
- Neoplasm of the pancreas
- Chronic fibrosis
- Hemochromatosis
- Pancreatic disease with fibrocalcific
- Endocrinopathies
- extra growth hormone (acromegaly)
- Syndrome Cushing
- Hyperthyroidism
- Hypothyroidism
- Pheochromocytoma

Ayurvedic treatments for diabetes mellitus

Alternative and complementary therapies are frequently used by people with diabetes and other chronic conditions. In this review, the effectiveness and security of using several Ayurvedic remedies for diabetes mellitus are examined. 354 people participated in seven trials that we located (172 on treatment, 158 on control, and 24 could not be classified). Type 2 diabetes mellitus-afflicted adults were included in each of these trials. Only one study examined the 'whole system' Ayurvedic treatment whereas six examined five distinct herbal combinations (proprietary medications). From three to six months were spent on treatment. Glycohemoglobin A1C (HbA1C) levels were found to be considerably reduced after therapy with Diabecon, Inolter, and Cogent DB (proprietary herbal mixes) compared to controls in one trial each. At the end of the trial period, the treatment group's fasting blood sugar levels were significantly reduced in two studies involving Diabecon and one study involving Cogent DB (proprietary herbal mixes).

Objective To assess and compile information on the effectiveness of Ayurvedic treatments for diabetes mellitus. Design systematic evaluation of studies measurements and key findings We couldn't find any studies that evaluated Ayurveda as a medical system. The Ayurvedic treatment that was by far the most often examined was botanical therapy. Herbs were either investigated individually or in formulations. In total, 993 titles from Western computerized databases and 318 titles found by hand-searching Indian journals were looked at, and 54 publications containing the findings of 62 studies were the result. The most extensively researched herbs were Eugenia Jambo/ana, C. indica, G. Sylvestre, and fenugreek. [7]

Ayurvedic Medicine For Diabetes Mellitus

Those who suffer from diabetes and other chronic illnesses frequently seek complementary and alternative therapies. This evaluation looks at the effectiveness and security of using several Ayurvedic remedies for diabetes mellitus. There were 354 participants in seven studies that we located (172 on treatment, 158 on control, and 24 could not be classified). Adults with type 2 diabetes were a part of all of this research. Only one 'whole system' Ayurvedic treatment was studied in one of six investigations that examined five distinct herbal combinations (proprietary medications). From three to six months were spent on treatment. A study on each of the proprietary herbal combinations Diabecon, Inolter, and Cogent DB revealed considerably lower levels of glycosylated haemoglobin A1C (HbA1C) than controls at the conclusion of the treatment period. There were significantly decreased fasting blood sugar levels in the treatment group at the end of the study period in two studies using Diabecon and one study using Cogent DB (proprietary herbal combinations). These trials didn't record any fatalities, and the intervention and control groups' side effects weren't noticeably different. No discernible improvement in health-related quality of life was found in one investigation using a pancreas tonic. [8]

Drug

Triphala, fenugreek, and Shilajit decoctions are frequently used as medicines. AmalakiChurna, Naag Bhasma, and Haldi Powder are a few of the powders (Churana) that are employed. It is thought that the Ayurvedic remedies "Chandraprabhavati" and "Vasanta Kusumakar Ras" reduce blood sugar levels.

Ayurveda is more than just herbs; it has now spread outside the borders of India to include the Indian subcontinent, Sri Lanka, Malaysia, Mauritius, Southern Africa, Japan, Russia, Europe, and North America. Ayurveda is Sanskrit for "knowledge of life" or "knowledge of longevity." Ayurveda's fundamental goal is to restore a person's natural equilibrium. Diet, exercise, meditation, herbs, massage, sun exposure, controlled breathing, and cleansing procedures are the mainstays of Ayurvedic medicine. Unbalanced dosha. According to Ayurveda, people are a small example of nature. air, fire, water, earth, and ether (space). The doshas control every aspect of biology, psychology, and pathophysiology. A dosha imbalance results in illness since they are essential to human health. Ayurveda therefore aims to rebalance the doshas in Harmony. Ayurveda regards balanced doshas as being crucial for preserving health, together with good tissues (dim/liS), healthy digestion, and excretion removal (malas). [9]

Drug

1.Cinnamon

Cinnamon is the inner bark of a tropical evergreen tree that is indigenous to India and Sri Lanka. It possesses insulin-like qualities that can lower blood glucose levels, triglycerides, and cholesterol, all of which are crucial, especially for people with type 2 diabetes.

2. Pterocarpus marsupium

Pterocarpus marsupium is a sizable deciduous tree. Pterocarpus marsupium shows to decrease gastrointestinal glucose absorption and increase pro-insulin and insulin levels. It is also useful in cell regeneration.

3. Bitter Melon (Momordica charantia)

Also referred to as karela, bitter cucumber, bitter gourd, and charantin. According to studies, Asian Bitter Melon may reduce blood glucose levels. The blood sugar-lowering abilities of bitter melon are thought to be attributed to a number of isolated chemicals from the fruit. Among these are charantin and polypeptide-P, sometimes known as plant insulin or an insulin-like protein. The pancreas and non-pancreatic cells, such as muscle cells, are thought to be affected by bitter melon's effects.

4.Gymnema sylvestre

The dried leaves are pulverised with the coriander fruit juice, which is then administered orally to treat diabetes. Since over 2000 years ago, diabetes in India has been treated using this therapy. In India today, type II diabetes and type I diabetes are both treated with it. In both type I and type II diabetes, gymnema enhances insulin's capacity to decrease blood sugar. This plant is becoming increasingly prevalent in over-the-counter blood sugar balancing and weight loss treatments.

5. Onion

An onion is a lily family member (Liliaceae). Experimental and clinical data indicate that onions contain an active component known as APDS (allyl propyl disulfide). It has been demonstrated that APDS inhibits the liver's ability to break down insulin and may even stimulate the pancreas' synthesis of the hormone, increasing the quantity of insulin and lowering blood sugar levels. The favourable cardiovascular benefits of garlic are a further advantage. It is discovered to be antihypertensive, lower cholesterol levels, and inhibit platelet aggregation.

6. Blueberries (Vaccinium myrtillus)

These berries are relatives of European bilberries. Blueberries come in a variety of species, including V. pallidum and V. corymbosum, and they are grown all around the country. The main component of the plant used medicinally is its leaves. A natural way to regulate or lower blood sugar levels is to consume blueberries. The active component in the leaves has a remarkable capacity to eliminate the body's excess blood sugar. It works well as an astringent and soothes kidney, bladder, and prostate discomfort.

7. Asian Ginseng

Traditional Chinese medicine frequently uses Asian ginseng to treat diabetes. It has been demonstrated to increase the number of insulin receptors and to improve the release of insulin from the pancreas. Additionally, it enhances psycho-physiological performance and has a direct effect on decreasing blood sugar.

8. Ginkgo biloba

A species that has thrived in China for over 200 million years and now thrives all over the world, it has a long history of usage in traditional Chinese medicine. The fan-shaped leaves of the ancient Ginkgo biloba tree are used to make this well-known herbal remedy. For the treatment and prevention of early-stage diabetic neuropathy, the extract may be helpful. As a result, gingko biloba extract is a key medication in the treatment of peripheral vascular disease. It increases blood flow in the peripheral tissues of the nerves in the arms, legs, hands, and feet. It's been demonstrated to shield against diabetic retinopathy as well.

9. Neem (Azadirachta indica)

Plant extracts from this species that were hydroalcoholic showed anti-hyperglycemic action. This plant not only possesses anti-diabetic properties but also anti-bacterial, anti-malarial, anti-fertility, hepatoprotective, and antioxidant properties.

10. Garlic (Allium sativum)

is a perennial herb that is grown all over India. The sulfur-containing component allicin, which gives garlic its odour, has been found to have strong hypoglycemic effects. The decrease in fasting blood glucose and triglyceride levels seen as compared to sucrose controls is thought to be the result of increased hepatic metabolism, increased insulin release from pancreatic cells, and insulin sparing action.

11. Caesalpinia bonducella

Tribal Indians traditionally utilize Caesalpinia bonducella to regulate blood sugar. It is extensively dispersed throughout India's coastal region. In chronic type II diabetes animals, both the aqueous and the ethanolic extracts demonstrated strong hypoglycemic action. These extracts also boosted glycogenesis, which raised the amount of liver glycogen. The inhibition of glucose absorption may be the cause of the seed extracts' antihyperglycemic effects. The medication may have anti-diabetic and anti-hyperlipidemic properties.

12. Bhuiamala (Phyllanthus amarus)

A member of the Euphorbiaceae family, it is a herb that can grow up to 60 cm tall. Bhuiamala is its usual name. It can be found sporadically in the drier regions of India, primarily in the Deccan, Konkan, and south Indian provinces. The treatment of diabetes traditionally uses it. An effective antioxidant activity was discovered in Phyllanthus amarus methanolic extract. Additionally, in people with alloxanized diabetes, this extract decreased blood sugar. Additionally, the plant has anti-inflammatory, anti-mutagenic, anti-carcinogenic, and anti-diarrheal properties.

13. Diasol

A polyherbal anti-diabetic compound made up of plant extracts from Eugenia jambolana, Foenum graceum, Terminalia chebula, Quercus infectoria, Cuminum cyminum, Taraxacum officinale, Emblica officinalis, Gymnema sylvestre, Phyllanthus niruri, and Enicostemma littorale an earlier study revealed that Diasol is an efficient anti-diabetic polyherbal formulation, lowering blood glucose levels by 63.4% at doses of 125 and 250 mg/kg b.w.

14. Tulsi

Tulsi is another name for holy basil (Ocimum sanctum). This plant has a long history of being used medicinally. In both normal and alloxan-induced diabetes, the aqueous extract of Ocimum sanctum leaf demonstrated a considerable reduction in blood sugar levels. The significant decrease in fasting blood glucose, uronic acid, total amino acids, total cholesterol, triglycerides, and total lipids demonstrated the hypoglycemic and hypolipidemic benefits of tulsi in diabetes.

15. Diabecon

A mixture of herbal ingredients that includes Gymnema sylvestre, Pterocarpus marsupium, Glycyrrhiza glabra, Casearia esculent, Syzygium cumini, Asparagus racemosus, Boerhavia diffusa, Sphaeranthus indicus, Tinospora cordifolia, Swertia chirata, Tribulus terrestris, Phyllanthus am It contains antioxidant qualities and guards against oxidative stress on cells. By lowering the amounts of glycated haemoglobin, bringing the level of microalbuminuria under control, and altering the lipid profile, it has an effect similar to insulin.

16. Diabrid

Clinical trials involving 60 diabetic patients over a six-month period were conducted on herbal anti-diabetic formulations for patients with maturity-onset diabetes. Diabrid was shown to be a viable anti-diabetic medicine in cases of mild and moderate diabetes (180-280 mg/dl) and was proven to be well tolerated in high dosages. Depending on the starting blood sugar level, the blood sugar level was under control between 2 to 8 weeks. No negative effects were noticed. The hypoglycemic action was slow and dose-dependent. Additionally, the medication kept diabetic patients' blood pressure and body weight stable. The liver and kidney were not negatively affected. [10]

Dosha body type affects how you are treated

Additionally, according to the dominant dosha or dosha combination, persons are born with one of seven different physical types. Vata, pitta, or kapha are the three humours that might dominate a body type. They can also dominate a body type in combination, such as vata-kapha (where Vata and kapha are present in roughly equal amounts), vata-pitta, pitta-kapha, or vata pitta-kapha. A person's dosha body type manifests both physically and emotionally; for instance, a vara-dominant body type will result in a slim build and an insecure demeanour. Body type and dosha imbalance are taken into account by the Ayurvedic physician when [11]

Treating Diabetics With Homeopathy

It is a prevalent misconception that homeopathic medicine is quite safe. Treatment using homeopathic remedies, however, could be harmful if done incorrectly. cases report After using Arsenic Bromide 1X for a brief period and then other homeopathic products containing arsenic for a prolonged period, Case 1 developed melanosis and keratosis. After using Arsenic S.F. 1X (ArsenicumSulfuratum Flavum) to try to treat his white skin spots, Case 2 acquired melanotic arsenical skin lesions. As part of his treatment for diabetes, Case 3 took arsenic bromide 1X for six days. As a result, he experienced acute gastrointestinal sickness, leukopenia, thrombocytopenia, diffuse cutaneous melanosis, and patchy desquamation. He experienced quadriparesis in less than two weeks due to toxic polyneuropathy. The levels of arsenic in tissue samples from the integument of all three patients were noticeably higher. Arsenic levels in the drinking water were all within acceptable ranges in all three instances, although they were higher in samples of the homeopathic medicines. [12]

Homeopathy is a widely used and approved form of treatment for a variety of medical conditions. The majority of these issues have symptomatology in common. Although the DNA Insulin product is only intended to lessen the secondary symptoms of diabetes, such as agitation, lack of appetite, aggravation when the weather changes, thirst, itching, and others; it was our goal to ascertain whether DNA Insulin had a discernible impact on the patients' metabolisms. During a twelve-week period, we also wanted to find any DNA Insulin side effects. Homeopathy has a variety of known effects on metabolism. Research from Eastern Europe and Ireland by the Maitreya Corporation has revealed significant changes in the use of homeopathy in a variety of medical procedures.

Drug

1.The Syzygium jambolana

A coarse powder of the plant's seeds containing 82.0%–86.0% v/v alcohol is used to make Syzygium jambolana Q. In mother tincture and potentized dilutions, Syzygium jambolana has been examined for its anti-diabetic properties. In male rats that had been made diabetic by Streptozotocin (STZ), Maiti et al. examined the impact of Syzygium jambolana Q on lipid and carbohydrate metabolic abnormalities. According to the study's findings, treatment with Syzygium jambolana Q has a therapeutic impact on diabetic rats' oxidative injuries, lipid and carbohydrate metabolic abnormalities, and carbohydrate and lipid disorders. In diabetic rats, Syzygium jambolana Q has been shown to lower levels of blood sugar, triglycerides, total cholesterol, LDL-c, VLD-c, serum urea, serum creatinine, serum uric acid, and serum albumin. It was discovered to raise levels of the enzymes catalase, peroxidase, superoxide dismutase (SOD), liver and skeletal muscle glycogen, plasma insulin, and body weight. Additionally, hexokinase, glucose-6-phosphate dehydrogenase, and glucose 6-phosphatase activities in hepatic tissue have been observed to be improved by Syzygium jambolana Q in diabetic rats. This study also demonstrated that Syzygium jambolana Q therapy lowers serum levels of glutamate pyruvate transferase and glutamate oxaloacetate transferase.

2. Cephalanthus indica

Fresh plant pulp and leaves are combined with 40.0% v/v alcohol to create Cephalandra indica Q. Along with Syzygium jambolana, Cephalandra indica is another herb that is effective in the homeopathic approach to treating diabetes. Rastogi et al. conducted two tests to check Cephalandra indica Q's ability to lower blood sugar levels in diabetic rats produced by alloxan. The results of the experimental tests showed that Cephalandra indica Q regularly administered resulted in detectable hypoglycaemic activity at microdose levels ranging from 25 to 75 l/100 g. body weight and histological analyses showed pancreatic beta cell regeneration. Further research into the hypoglycaemic effects of Cephalandra indica Q and its 3X formulations in alloxan-induced diabetic rabbits found that they significantly lower blood sugar levels.

3. Gymnema

Gymnema Sylvestre Q is made from coarsely ground plant material that contains between 76.0% and 80.0% v/v alcohol. Gymnema Sylvestre mother tincture, 6C, and 30C formulations were found to have strong antiglycation activity in vitro, according to Kishore and Singh. The preparations were discovered to work by preventing the synthesis of AGEs, the buildup of sorbitol, and the aldose reductase enzyme. The effectiveness of the same treatments in reducing diabetic nephropathy in STZ-induced diabetic rats was then examined.] Fasting blood glucose, urea, uric acid, creatinine, blood urea nitrogen, total cholesterol, triglycerides, low-density lipoproteins, and very low-density lipoproteins all increased in diabetic mice whereas high-density lipoprotein levels decreased. In diabetic rats, the lipid profile, renal profile, and fasting blood glucose were all improved by Gymnema Sylvestre Q, 6C, and 30C preparations.

4. Abroma

Alcohol content ranges from 42.0% to 46.0% v/v in aroma Augusta Q, which is made from the plant's damp leaves. In alloxan-induced diabetic rats, Rastogi et al. revealed that Abroma Augusta Q has modest hypoglycaemic potential at dosages of 50 l, 75 l, and 0.1 ml/100 g. b.w. without stabilizing blood glucose levels.

5. Momordica

Fresh fruit pulp from the plant's fruits is used to make Momordica charantia Q, which is made in 57.0% v/v alcohol. In rabbits with alloxan-induced hyperglycaemia, Sundaram investigated the effects of Momordica charantia Q on blood sugar, growth hormone, and prolactin levels. According to the study, Momordica charantia Q dramatically reduced blood sugar levels in diabetic rabbits at a dose of 20 l/100 g body weight while raising levels of growth hormone and prolactin.

6. Absinthium

Absinthium Q is made by combining coarsely ground Artemisia absinthium seeds and leaves with alcohol that ranges from 63.0% to 67.0% by volume. An extremely viscous resin obtained by drilling Larix decidua trunks is used to make Resina laricis mother tincture. At microdose levels ranging from 25 to 75 l/100 g, it was discovered that the Absinthium X/Resina laricis 3X formulation had detectable hypoglycaemic activity. body mass index in rats with diabetes brought on by alloxan.

7. Chionanthus virginica

A 15 l/100 g body weight dose of Chionanthus virginica Q was reported to lower blood sugar levels in rabbits with alloxan-induced hyperglycaemia. Chionanthus virginica Q is made from coarsely ground plant bark and contains 61.0%–63.0% v/v alcohol.

8. Alloxan

A study tested dynamised and undynamised alloxan in potencies of 6, 30, 200, and 1000 times for its hypoglycaemic action using alloxan-induced diabetic albino rats. Alloxan stock solution is made from orthorhombic and anhydrous crystals of alloxan. Results showed that when compared to undynamised alloxan at equivalent potencies, dynamised alloxan at 6X, 30X, 200X, and 1000X potencies lowered blood sugar levels in diabetic rats and increased levels of growth hormone. [13]

Unani Diabetic Treatment

A variety of microvascular (retinopathy, neuropathy, and nephropathy) and macrovascular (heart attack, stroke, and peripheral vascular disease) complications of diabetes mellitus include retinopathy, neuropathy, and nephropathy. Diabetes mellitus is a heterogeneous metabolic or endocrine disorder characterised by hyperglycaemia, glycosuria, and negative nitrogen balance. Ziabetus shakri (ziabetus har) and ziabetus sada (ziabetus braid) are the two terms used in the classical text to classify diabetes depending on whether sugar is present in the urine. Ziabetus shakri is characterized by increased thirst, urination, hunger, and weight loss over time as well as a decline in sexual function and gangrene as a consequence. Sue Mizaj har (severe heat temperament derangement) of the kidney, hararat, Sue Mizaj braid (cold temperament derangement) of the kidney or whole body are the primary causes of Ziabetus Shakri. Insulin and a variety of oral hypoglycemic medications, including biguanides, glinides, and sulphonyl ureas, are currently accessible treatments for diabetes. As a result of the major side effects associated with the use of these drugs, one of the keys focuses of cutting-edge research is the quest for more potent and secure hypoglycemic medicines derived from natural sources. The inclusion of flavonoids, terpenoids, polyphenols, carotenoids, coumarins, and other components that lower blood glucose levels are credited with the medicinal plants' hypoglycemic action.

The review's primary focus is on pharmacological research concerning the anti-hyperglycemic properties of native plant material (described in Unani medicine) and potent bioactive ingredients connected to pancreatic cell stimulation or synthesis. 14]

Drug

1.Gurmar Booti (Gymnemma sylvester)
2. Kachnar (Variegated Bauhinia)
3. Tukhme Karela, also known as Mordica charantia
4. Trigonella foenumg, or ukhme Methi
5.Dammul-akhwain (Pterocarpus marsupium)
6. The gilo plant, Tinospora cordifolia
7. Tahlab (Spirulina platensis)
8. Kalonji. (Nigella sativa)
9. Tukhm Jamun (Eugenia jambolina/Syzygium cumini)
10. Tukhme Khurfa (Portuccaoleracaea)
11. Chiraita
12. Afsanteen

1. GurmarBooti (Gymnemma sylvester):

Gymnemosides and gymnemic acid are two names for different hypoglycemic compounds found in G. sylvestre that have been extracted from the plant's saponin portion. Gymnemic fractions also restrict glucose uptake in the intestine. Its triterpene glycosides, which were extracted from the plant, prevented the use of glucose in muscles. Without affecting cell viability, a water extract from the leaves of G. sylvester stimulates the release of insulin from mouse cells and isolated human islets in vitro. The oral administration of 400 mg/day of a water-soluble extract from the leaves of G. sylvester to 27 patients with insulin-dependent diabetes mellitus on insulin therapy decreased fasting blood sugar, HbA1c, glycosylated plasma protein, and insulin requirements, but they remained higher than the control. The water-soluble leaves of G. sylvester produce insulin most likely through triggering pancreatic beta-cell regeneration both in vivo and in vitro. 2.2

The plant's leaves are used to treat type II (adult-onset) diabetes in Siddha, Unani, and Ayurveda systems of Indian traditional medicine, and it is classified in the Indian Pharmaceutical Codex (Madhumeha). The plant has become fragile due to a lack of effective agro techniques,

therefore the varied populations and variants found in different phytogeographical locations deserve the scientific community's attention. [15]

2. Kachnar (Variegated Bauhinia)

It was discovered that the insulin-tropic activity of the crude ethanolic extract of B. variegate, which contains the active ingredient rose oxide, is dose-dependent. Insulin-like proteins from B. variegate leaves have hepatoprotective, anti-hyperlipidemic, immune-modulating, anti-tumor, and anti-inflammatory effects. They also have antioxidant potential.

Traditional uses for Bauhinia variegata Linn. include the treatment of bronchitis, leprosy, inflammation, bacterial infection, liver diseases, diarrhoea, dysentery, skin conditions, leprosy, intestinal worms, wounds, ulcers, and tumors (Prashar et al., 2010; Yadava et al., 2003; Sinha et al., 2012). Astringent, alliterative, anti-diabetic, anti-tumor, tonic, and anthelmintic, as well as for obesity and cleaning ulcers, are all used for the stem bark. (Rajkapoor et al., 2003; Ambasta, 1998; Ram et al., 1980; Rajkapoor et al.,[16]

3. Tukhme Karela, also known as Mordica charantia

Momordica and charantin, as well as other phytochemicals including galactose-binding lectin and an insulin-like protein isolated from various parts of this plant, are present in the seeds of M. charantia. These substances have an insulin-mimetic effect. When given subcutaneously to gerbils, langurs, and humans, the isolated polypeptide-p from M. charantia seeds and tissue had a strong hypoglycemic impact. In clinical research, M. charantia fruit water-soluble extract effectively lowered blood glucose levels in the nine participants with NIDDM diabetes who underwent an oral glucose tolerance test (50 gm).

Following studies on animals and humans, a number of plants have been reported to have antidiabetic and related beneficial properties, including Gymnema sylvestre, Azadirachta indica, Aloe vera, Momordica charantia, Acacia arabica, Aegle marmelos, Allium cepa, Allium sativum, Althaea Officinalis, Caesalpinia bonducella, Cinnamomum

4. Trigonella foenum, or ukhme Methi

An amino acid with insulin-stimulating effects is found in methi seeds and is called 4-hydroxy isoleucine. Experimentally produced diabetes rats, dogs, mice, and healthy people have all shown that methi seeds have a hypoglycemic effect. The word "Foenum- grecum," which means Greek Hay, is the source of the medication Barge Hulba, which is made from the leaf of Trigonella foenum graecum. Due to the shape of its corolla, the species Trigonella takes its name from a Greek term meaning "three-angled." [18]

5.Dammul-akhwain (Pterocarpus marsupium)

Commonly referred to as Indian kino or vijaysar, dammul-akhwain has a variety of chemical components, including epicatechin, pterostilbene, and marsupsin, among others. Its active ingredient, epicatechin, has been discovered to be insulinogenic, promoting the release of insulin and the conversion of proinsulin to insulin. The tree is where the Kino of the European pharmacopeia's comes from. The gum resin, commonly used in Indian medicine, resembles dried blood (also known as dragon blood). India has a long history of using this herb to treat diabetes. It has been demonstrated that the flavonoid (-)-epicatechin, which is derived from this plant's bark, protects rats' beta cells from damage brought on by alloxan. The ability to restore healthy pancreatic beta cells has been demonstrated for both epicatechin and a crude alcohol extract of Pterocarpus marsupium. [19]

6. The gilo plant, Tinospora cordifolia

N-Formylannonain, N-Methyl-2-pyrrolidone, 11-Hydroxymustakone, and Cordifolioside are only a few of the active chemical components found in gilo. A syringe, a magnoflorine, and tinocordiside. A member of the Menispermaceae family of climbing shrubs is Tinospora cordifolia (Willd.) Miers ex Hook. F. & Thomson. China, Bangladesh, Sri Lanka, and all of India are home to it. [20] Amrita or guduchi are two frequent names for this plant. It may be cultivated in a wide range of soil types, from acidic to alkaline, and needs a reasonable amount of rainfall. According to Ayurveda, the medication strengthens the body's defences against specific infectious organisms and the immune system. [21]

7. Tahlab (Spirulina platensis)

Numerous terms, including Ziabetus, Moattasha, Atsha, IntesaeAnmas, Zalaqulkulliya, Dolab, Dawwarah, Barkar, and Barkarya, are used by notable Unani scholars to characterize diabetes in historical texts, including Zakaria Razi, Ali Ibn Abbas Majoosi, Ibn Sina, Ismail Jurjani, Ibn Zuhar, and Ibn Hub Numerous consequences, including diabetic nephropathy, neuropathy, retinopathy, diabetic foot, charcot joints, and sexual dysfunction, are caused by the long-term effects of diabetes. [22-23]

Oral administration of 15 mg/kg spirulina for 45 days in streptozotocin-induced diabetic rats dramatically reduced blood sugar levels, showed decreased glucose-6-phosphatase activity and enhanced hexokinase activity, and had a hypoglycemic effect on noninsulin dependent diabetic mellitus.

8. Kalonji (Nigella sativa)

When used as a supplement for 12 weeks at a dose of 2 gm/day, N. sativa may help individuals with type 2 diabetes who suffer from dyslipidemia because N. sativa seed extracts increase the glucose-induced release of insulin from rat-isolated Langerhans islets. Kalonji (Nigella sativa), a dicotyledonous of the rananculacea family, is a remarkable herb with a deep historical and religious past, and it is one of the promising medicinal plants. The primary active substance in this plant comes from the seeds of N. sativa. The Prophet Mohammed's cherished proclamation that "Prayers and peace be upon him" refers to the black seed as the cure for all ailments save death" is where N. sativa's real significance to Muslims comes from [24].

9. Tukhm Jamun (Eugenia jambolina/Syzygium cumini)

Chronic hyperglycaemia with abnormalities in the metabolism of carbohydrates, fats, and proteins as a result of problems in insulin production, insulin action, or both are characteristics of the metabolic condition diabetes mellitus, which has numerous etiological causes. Worldwide, the price of treating diabetes is expensive and rising. Every country is seeing a rise in the prevalence of diabetes. Four out of five diabetics live in low- and middle-income nations, and 50% of persons with diabetes are unaware that they have the disease Ziabetus Shakari is primarily brought on by sue Mizaj haar (extreme hot derangement of temperament) and weakness of quwwatemaseka (retentive

power) of the kidney. Other contributing factors include hararatenaria, sue mizajbarid (cold derangement of temperament) of the kidney or whole body, zoafgurda (weakness of the kidney), and dilatation of ducts [25]

10. Tukhme Khurfa (Portuccaoleracaea)

Numerous biologically active substances are found in P. oleracaea (Purslane), such as free oxalic acids, alkaloids, omega-3 fatty acids, coumarins, flavonoids, cardiac glycosides, and anthrax quinone glycosides. In diabetic Mellitus mice, the effects of a crude purslane polysaccharide on body weight, blood sugar, total cholesterol, high-density lipoprotein cholesterol, triglyceride, and serum insulin levels were examined. P. oleracea is a rich source of omega-3 fatty acids, which are crucial for preventing heart attacks and boosting the immune system. Its aqueous extract also has antioxidant activity, which can help lower blood sugar, total cholesterol, and triglycerides.[26]

11. Chiraita

Chirality Swertia stimulates the islet release of insulin. Methanolic root extracts have possible antioxidant action, and methanolic leaf extracts have substantial antibacterial and anti-diabetic potential. [27]

12. Afsanteen

Absinthium Artemisia In alloxan-induced diabetic rats, an ethanol extract of Artemisia absinthium was administered intraperitoneally (i.p.) at doses of 250, 500, and 1000 mg/kg body weight over a period of ten days. At medium and high doses as well as following glibenclamide treatment, all raised blood serum indicators were decreased to substantial levels [26] [27].

Diabetic Allopathy Therapy

Diabetes mellitus was described by the WHO as "a metabolic illness of diverse etiologies characterized by persistent hyperglycaemia with changes in carbohydrate, lipid, and protein metabolism resulting from deficiencies in insulin production, insulin action, or both." 1 . Diabetes mellitus has a long-term negative impact on a number of organs, including the kidney, nerves, heart, and gastrointestinal tract, causing dysfunction, failure, and long-term damage. With an incidence range between 1 and 8%, it is the most prevalent endocrine condition worldwide. 2 . By 2025, it is predicted that 5.4% of people would have diabetes worldwide, up from 4% in 1995. 3 Even if synthetic anti-diabetic medications have improved recently [28].

Drug:

1. insulin

Taking insulin may also be necessary for certain patients with type 2 diabetes. Insulin for type 2 diabetes is the same as that used for type 1 diabetes. Insulin must be administered to type 1 diabetes (T1D) patients since their pancreatic beta cells are no longer able to make it. Muscle and adipose tissue both need insulin since it is essential for glucose uptake. 2 However, insulin is not just for people with type 1 diabetes (T1D); it can also be given to people with type2 diabetes (T2D), though usually only after several oral medications have been tried and failed to bring blood sugar levels to the desired level for a period of time. [29]

2. Alpha-glycosidase inhibitors

These drugs aid the body's digestion of table sugar and starchy foods. Your blood sugar levels will drop as a result of this consequence. AGIs are a group of medications that are used alone or in combination with other anti-diabetic medications to treat type 2 diabetes mellitus. They may also be used to prevent the development of type 2 diabetes in patients with reduced glucose tolerance. They are especially helpful for people who are at risk of hypoglycemia or lactic acidosis and are not good candidates for other diabetes medications like sulfonylureas and metformin. [30] [31] [32][33]

3. Biguanides

Glucose production in your liver is reduced by biguanides. Additionally, they facilitate glucose absorption by your muscles, lessen the amount of glucose that is absorbed by your intestines, and increase insulin sensitivity in your body.

4. Dipeptidyl peptidase (DPP-4) inhibitors

By lowering blood sugar levels without resulting in hypoglycemia, DPP-4 inhibitors are employed.

The DPP-4 enzyme is inhibited by DPP-4 inhibitors. Normally, the hormone incretion aids your body in producing insulin when it is required, but this enzyme destroys it.

5. Metformin (biguanide class) (biguanide class)

When treating pre-diabetes, metformin is regarded as the first-line oral medication for diabetic patients. It functions by lowering intestinal sugar absorption, raising insulin sensitivity, and reducing liver glucose synthesis. A1 levels, fasting glucose levels, and postprandial glucose levels have all been observed to drop by 1% to 2%, 25% on average, and 44%, respectively, in response to metformin. 3 Prescribers may opt to start their patients on metformin and lifestyle changes as a monotherapy first, depending on the severity of the condition, before introducing additional oral medicines to their treatment plans. Though the medication itself is well tolerated, some individuals may initially have gastrointestinal disturbance, including cramping in the abdomen, diarrhea, and flatulence. [34]

6. Glipizide (sulfonylurea class)

A doctor may decide to add glipizide to a patient's treatment plan if the patient has been taking metformin for three months and the A1C level is still above goal. The pancreatic beta cells are induced to secrete more insulin, which lowers postprandial blood glucose levels. This is how this drug works. Glipizide is prescribed to treat T2D; however, it is contraindicated in the treatment of T1D because it cannot be taken with insulin, which is a necessary treatment for all T1D as was already mentioned. [35]

7. Glimepiride (sulfonylurea class)

Although glipizide and glimepiride have a similar mechanism of action, glimepiride is rarely used in conjunction with metformin due to the possibility of developing hypoglycemia. It is recommended to take glimepiride, a once-daily drug, with the first substantial meal of the day. In conjunction with a healthy diet and regular exercise, the medication performs best. The least amount of weight gain among all sulfonylureas is related to glimepiride.

8. Jardiance (SGLT2 class)

Invokana and Jardiance have a similar mechanism of action, but Jardiance may be a better choice for patients with renal impairment because it has a 39% lower risk of developing new kidney disease or worsening existing kidney disease. 3 When deciding which SGLT2 is best for each patient, it's important to keep in mind that Jardiance showed decreased hospitalization rates from heart failure in at least 40% of patients during clinical trials. [36]

9. Januvia (dipeptidyl peptidase 4 inhibitors)

With the help of increased insulin secretion from beta cells and decreased glucagon secretion, Januvia controls blood sugar levels. Januvia finally improves the body's natural incretins. In addition to considerably lowering postprandial blood glucose levels, this medication has been demonstrated to reduce A1C levels by 0.5% to 0.8%. [37]

10.Pioglitazone (thiazolidinediones)

Insulin sensitivity in the periphery is increased by pioglitazone. A1C levels have been shown to drop by 0.5% to 1.4% as a result. 3 The fact that pioglitazone might cause or make heart failure worse makes it a less-than-ideal choice for some people, despite the fact that it has extremely strong efficacy in terms of getting patients to target. When using this drug, patients may feel queasy and have stomach trouble. [38]

11. Trulicity (glucagon-like peptide 1 agonist)

Due to the fact that this approach only requires an injection once a week, it may soon be chosen over Victoza. However, it can be pricey. Despite requiring fewer injections, the medication functions similarly to Victoza. Although it can produce pancreatic pain and inflammation, patients will also experience weight loss when taking this medicine.[38]

Conclusion:

Diabetes is a slow-killing disease with no known cure. However, its problems can be avoided with adequate education and prompt treatment. Blindness, kidney damage, and a heart attack are three major consequences. It is critical to keep patients' blood glucose levels under careful control in order to avoid problems. One of the issues with strict management of blood glucose levels is that such attempts may result in hypoglycemia, which causes far more serious complications than an increased level of blood glucose. Researchers are currently looking for alternative diabetic treatment methods. The purpose of this paper is to provide an overview of the present state of diabetes research.The author believes that diabetes is one of the most difficult study issues of the twenty-first century and wishes to encourage fresh scholars to take on the challenges.

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