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Herbal Approach in Treating Diabetes- A Review

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Review Article

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ABSTRACT

Diabetes mellitus it's a type of chronic metabolic disorder due to reduced insulin activity or lack of insulin in the body which ends up in hyperglycaemia and abnormalities in carbohydrate, protein and fats metabolism. It is one of the emerging disease observed all over the world and resulting in various others complications by effecting other parts of the body like heart, kidney, eye, skin etc., if untreated or uncontrolled diabetes results in mortality. Uncontrolled and untreated diabetes leads to severity of the diabetes. The diabetes mellitus can be treated by using herbal medicines or allopathic medicines but when compared to the allopathic treatment the ayurvedic is opted by many diabetic patients even though it takes time to control the blood sugar levels it just because of its less cost and low side effects. Several studies revealed that the herbal combinations i.e., polyherbal combination is showing the synergetic activity. The other studies also revealed that integrated ayurvedic and allopathic approach leads to better healthy life.

RISING EPIDEMIC AND BURDEN OF DIABETES

Diabetes is fast gaining emerging disease all over the world, In India with more than 62 million individuals are currently diagnosed with diabetes [1-5]. Among all countries India occupied the top position with the highest number of people with diabetes mellitus followed by China (20.8 million) with the United States 19.1 million people or 9.3% of the U.S. population have diabetes which was placed in 2nd and 3rd places respectively. It is predicted that over the next 10-20 years i.e., by 2030 diabetes mellitus may upset up to 79.4 million individuals in India, while China (42.3 million) and the United States (30.3 million) [6-8]. According to (IDF) data i.e., International Diabetes Federation by the year 2025, the number of people affected with the diabetes will reach to 333 million i.e., 90% of these people will have Type 2 diabetes. In most of the Western countries, the overall prevalence has reached to 4-6%, and 10-12% is among elder people of age 60 to 70 years. The annual health costs caused and the complications caused due to diabetes account for around 6-12% of all health-care expenditure [9-12].

TYPES OF DIABETES

Type 1 Diabetes Mellitus is known as insulin-dependent diabetes mellitus IDDM or juvenile-onset diabetes.

Type 2 Diabetes Mellitus is known as non-insulin-dependent diabetes mellitus NIDDM

Gestational Diabetes

Other types:

MODY (maturity-onset diabetes of youth)

LADA (Latent Autoimmune Diabetes in Adults)

Type 1 Diabetes Mellitus

Pancreatic beta cells are the only cells in the body that make the hormone insulin which regulates blood glucose. Type 1 diabetes develops when the body's immune system destroys the beta cells of pancreas. The Type 1 diabetes is diagnosed in 5% to 10% cases, which may be due to genetically, autoimmune, and environmental factors and usually seen in children and young adults, although Type 1 diabetes onset can occur at any age [13,15].

Type 2 Diabetes Mellitus

The inability of pancreatic beta cells to produce sufficient amount of insulin leads to type 2 diabetes. Usually the Type 2 diabetes begins as insulin resistance (insulin resistance is a condition where the cells do not use insulin properly). The Type 2 diabetes is diagnosed in 90% to 95% case and mainly seen in older age people, obese patients, and people with the family history of diabetes, impaired glucose metabolism, and race/ethnicity [16-20].

Gestational Diabetes

Gestational diabetes a form of glucose intolerance observed in some women during pregnancy. It is commonly seen in obese women and women with a family history of diabetes. During pregnancy, gestational diabetes is treated to normalize maternal blood glucose levels to avoid the complications. After parturition or delivery, 5% to 10% of women with gestational diabetes are found to have type 2 diabetes [20,21].

WHAT ARE THE SIGNS AND SYMPTOMS OF DIABETES?

The signs and symptoms of diabetes are

- Increase in thirsty
- Losing weight
- Tiredness
- Increased apatite
- Frequent urinating
- Dry and itchy skin
- Feelings of pins and needles in your feet
- Blurry eyesight
- Decrease in wound healing
- Losing feeling in your feet [22-25]

DIAGNOSTIC VALUES OF DIABETES MELLITUS [26-30]

Table 1: Diagnostic criteria for diabetes

Biochemical Index	Normal	Goal	Action Indicated
Average premeal BG (mg/dl) ³	<110	80-120	<80 or >140
Average 2 hour postmeal BG (mg/dl) ³ for rapid-acting insulin only	<120	150-180	>180
Average bedtime BG (mg/dl) ³	<120	100-140	<100 or >160
Average 3:00 am BG (mg/dl)	<110	80-100	<80 or >120
HbA1c (%)	<6	<7	>8

Different Diabetes Complications

Long-term complications of diabetes develop gradually and the longer you have diabetes the higher the risk of complications they may be even life-threatening. Possible complications include.

Macro vascular Complications

Diabetic patients are subjected to higher risk for the development of these macrovascular complications mainly include Ischemic heart disease, cerebrovascular disease, and Peripheral vascular disease. If you have diabetes, you are more likely to have heart diseases [31-40].

Micro vascular Complications

Nerve damage (neuropathy)

Excess sugar can injure the walls of the tiny blood vessels (capillaries) especially in your legs. This results in pain, burning, tingling, and numbness which usually begins at toes of fingertips and gradually spreads upward [44-45].

Kidney damage (nephropathy)

About 20-30% of patients with diabetes develop evidence of nephropathy. About 20 – 30% of patients with diabetes develop evidence of nephropathy [46-48].

Eye damage (retinopathy)

Diabetes damages the blood vessels of the retina and results in retinopathy and ultimately it leads to the blindness and sometimes they develop other eye complications like Cataracts, Retinopathy, Glaucoma [49-54].

Foot damage

Reduced blood flow to the feet increases the risk of various foot nerve damage if it left untreated result in amputation of leg due to serious infections [55-60].

Infections

The association between diabetes and increased susceptibility to infection is not supported by any strong evidence. However, many specific infections are more common in diabetic patients [61-68].

Skin conditions

Hearing impairment

Alzheimer's disease

Ayurveda & Allopathy- An Integrated Approach

Managing and treating the Diabetes have become more costly due to high financial burden on the patients and the total healthcare system. If it left untreated or managed poorly, it can cause various complications by affecting the different body organs and results in loss of kidney function, blindness. Etc. Many herbs and spices which we use them for the daily needs are claimed to have properties of lowering the blood sugar levels, because of these properties they are useful for treating people who are at higher risk of type 2 diabetes [69-75]. A number of clinical research studies were carried out and still research is on-going to know the more potential benefits of various herbs. The research studies have revealed the potentiality links between herbal therapies and controlled blood glucose levels, which has led to an increase in demand for the use of 'natural' ingredients in treating and managing the diabetes [76-85]. Few Herbal drugs showing anti-diabetic properties are as follows Trigonella foenumgraecum, nigella sativa, gymnium sylvestre, syzygium cumini, Glycerrhiza glabra, Acacia Arabica, Helicteres isora, Pandanus odoratus, cinchorium intybus, Ipomoea batata etc [85-92].

Data from the various databases and literature surveys revealed that the quality of assessment of both type of treatments was conducted by the authors independently. Integrated approach will definitely have a positive effect on the treatment and management of various diseases [93-98]. It has a considerable scope for further research. Treating individually will have their own effects and side effects but treating together will have the synergetic effect. Even though there are advanced therapies in allopathic, the best way of treating diabetes mellitus by herbal way its due to minimal side effects and less cost Ayurveda is the oldest recovery device of medicine for the treatment of diabetes. Integrated Ayurveda and allopathic approaches for the treatment of diseases provides a better health care [99-103].

CONCLUSION

Various studies have revealed and concluded that many herbal plants which we are using them in our personal needs or for gardening purpose as ornamental plants are showing different types of medicinal properties. Nowadays people are more interested in herbal treatment because of its easy availability, less cost and reduced side effects. The another way is Integrated approach which helps in treating and managing the various diseases because of its dual synergetic effect on the disease.

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