



## MANAGEMENT OF DIABETES TYPE 2 WITH LIFESTYLE MODIFICATION

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### ABSTRACT

The role of better lifestyle in control of Diabetes has been known since ages. Our Ancient ayurvedic Vaidyas such as Acharya Carak, Sushrut, Vagbhata, has mentioned the term Prameh for Diabetes. They have focused on role of exercise, and healthy lifestyle in treatment of Diabetes. Guidelines for management of diabetes, recommend lifestyle modifications as part of treatment in all patients of diabetes. Diabetes mellitus is a metabolic disorder, characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein

metabolism resulting from defects in insulin secretion, insulin action or both. People having diabetes are at high risk of cerebrovascular, cardiovascular and peripheral vascular diseases. In today's scenario, globalization of unhealthy lifestyles has increased risk of many common, distressing, and life-threatening conditions. Diabetes is one of them. This paper is based on a single case study, where a patient with diabetes has been treated by modifying his lifestyle and eating habits.

**KEYWORD:** Prameh, Diabetes.

### INTRODUCTION

Diabetes mellitus (DM), simply known as diabetes, is a group of metabolic disorders in which there are high blood sugar levels over a long period.<sup>[1]</sup> In our samhitas a term Prameha, has been used for diabetes. A very common reason for development of diabetes i.e; unhealthy lifestyle, has been mentioned by different acharyas in their texts. Acharya Carak has clearly mentioned about development of prameh due to increase of kapha dosha<sup>[2]</sup>, which is a result of unhealthy foods like consumption of processed foods, overeating, obesity, over exertion,

alcohol & tobacco consumption. According to Ayurveda, when patient's urine becomes sweet with increased frequency is called as Prameha.<sup>[3]</sup>

Even after the emergence of insulin, Sir Joslin laid stress on the importance of exercise as one of the basic principles of management of diabetic patients.<sup>[4]</sup>

The environmental factors shows a strong association with diabetes likewise increase in age, family history of diabetes, obesity, unhealthy diet, physical inactivity, insulin resistance, adverse intrauterine environment, and stress factors.

Type 2 diabetes is a lifestyle disorder and an interaction of genetic and environmental factors precipitates the metabolic abnormalities existing in pre-diabetic subjects to the clinical stage of diabetes. There is a long asymptomatic pre-diabetic stage before the development of diabetes.

### **Diagnosis of Diabetes**

A person is said to be diabetic if he/ she shows symptoms, viz. polyuria, polydipsia, polyphagia, recurrent urine infections, unexplained weight loss and a random plasma glucose concentration of more than 200mg/dL, or a Fasting Plasma Glucose of more than 126 mg/dL.<sup>[5]</sup> A positive result, in the absence of unequivocal high blood sugar, should be confirmed by a repeat of any of following methods on a different day. As per WHO, people with fasting glucose levels from 110 to 125mg/dL, are considered to have impaired fasting glucose.

### **Epidemiology**

The global burden due to diabetes is mostly contributed by type 2 diabetes which constitutes 80% to 95% of total diabetic population. As of 2016, 422 million people have diabetes worldwide. The prevalence of diabetes is 8.5% among adults, nearly double the rate of 4.7% in 1980. Type 2 Diabetes makes up about 90% of the cases. The largest numbers with diabetes are in the 40 to 59 age groups. By 2030, there will be more diabetic people in the 60 to 79 age groups. Nearly 70% of the people with diabetes live in developing countries; the largest numbers are in the Indian subcontinent and China. The prevalence of diabetes in India in 1970's was 2.3% in urban and 1.5% in rural areas, as shown in multi centric study by the Indian Council of Medical Research (ICMR). In 2000s, the prevalence has risen to 12% to

19% in urban areas and to 4% to 9% in rural areas. A study from Andhra Pradesh reported a prevalence of 13.2%.

### **Environmental Factors**

Physical inactivity and excessive caloric intake are well recognized environmental factors producing type 2 diabetes. Obesity and type 2 diabetes are inevitably interrelated, together with anomalies like hypertension, high triglycerides, and low HDL- cholesterol. Obesity results from interaction of multiple susceptibility genes with environmental factors. By various estimates, aetiologically hereditary factors account for 50% to 70% of the obesity. Obesity is characterized by insulin resistance, an important feature of type 2 diabetes.

### **Signs and Symptoms**

The classical symptoms of untreated diabetes are, weight loss, polyuria, polydipsia, and polyphagia.<sup>[6]</sup> Symptoms may develop rapidly in type 1 DM, formerly called juvenile diabetes., while they usually develop much more slowly and may be absent in type 2 DM, also called adult onset diabetes. According to ayurveda, some prodromal sign & symptoms are headache, fatigue, itchy skin, vision changes, turbid urine, heaviness in body, constipation, yellowish white urine, sweetness in mouth & body, obesity, increased appetite, excess sleep.<sup>[7,8]</sup>

### **Modifications in Lifestyle**

Acharya Carak has also mentioned about nidan parivarjan<sup>[9]</sup>, vyayama<sup>[10]</sup>, hita ahara vihar, in management of diabetes. Lifestyle interventions include medical nutrition therapy (MNT) and physical activity (PA). The dietary planning is based on the type of diabetes, weight of patient, activity profile, and presence of co-morbid conditions. Whole grain products such as whole wheat breads, unpolished rice, oats, barley, carrots, turmeric, and saindhav lavana tend to produce lower glycaemic and insulinaemic responses than highly processed refined grains. Such unprocessed whole grains are also rich in fibre, antioxidants, vitamins, and phytochemicals. Cholesterol intake should be less than 300mg per day. As per choice of oil in the diet, none of the available oils in market are ideal, however choice of cooking oil should be as an oil which has moderate quantity of linolenic acid like ground nut oil, rice bran, sunflower oil, mustard oil, soyabean oil. The salt intake should be between 5 to 6 gms per day. Fresh fruits upto 400grams per day are advisable.

Different type of exercises should be done daily. Adequate physical activity helps in correcting obesity which is a major modifiable risk factor in type 2 DM. Regular physical exercises are associated with changes in body composition with reduction in body fat and increase in muscle mass, a reduction in triglycerides. Exercise causes reduction in blood pressure and also induces weight loss and subsequently helps in maintenance of diabetes. To be effective, exercise should be performed regularly minimum 30 to 45 minutes is preferable, empty stomach in morning and evening. Following a session of exercise, there is an increase in insulin sensitivity which returns to baseline after 72 hours of cessation of exercise. This proves the importance of regular exercises. Missing exercise for more than 72 hours may increase the blood glucose by 80 to 100 mg in subjects on oral hypoglycaemic agents.

Several yogic practices such as; *Bhujangasan*, *Ardha Matsyendrasana*, *Dhanurasana*, *Naukasana*, *Shavasana*, documented the beneficial effect in both type 1 & type 2 diabetes. It improves glycaemic control, reduces blood pressure, correct dyslipidaemia, reduces insulin resistance and eliminate stress leading to effective control of diabetes and prevention of its long term complications.

## CONCLUSION

The cost of managing these patients will be quite staggering for the economy of any country, particularly the developing countries. The progression and onset of diabetes takes 10 years to 15 years, and therefore, provides a good opportunity for prevention of diabetes and thus prevent morbidity. Lifestyle modification is the hallmark in all stages of preventive strategy. The result of these lifestyle intervention programmes are very impressive in the prevention of diabetes. Thus every doctor practicing curative medicines should also aware their patient about preventive aspects of DM. Exercise and nutrition counseling will go a long way in preventing diabetes. Provide healthy food alternatives and encourage physical activity to keep away such life threatening disease easily.

## CASE

A patient of age 53yrs came from bangalore to patanjali ayurvedic anusandhan sansthan, haridwar, with already diagnosed diabetes type 2, with her reports of fasting blood sugar 180mg/dL and post prandial blood sugar 220 mg/dL, on 09 february 2018. We started her treatment in a different way by giving her only a single ayurvedic medicine and modifying her life style and eating habits. A medicine named madhunashini vati 1 BD was started along with yoga, morning and evening walk and a planned diet chart including fruits,

raw vegetables, whole grain cereals, amla juice, jamun and karela swaras. After one month of the same treatment we had investigated her on 10 march 2018, and found her fasting blood sugar 105mg/dL and P.P. Blood sugar 146 mg/dL.

Which proves that modifying lifestyle can help to control diabetes type 2 with very less quantity of medicines.

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