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Effect Of Therapeutic Raw Diet Fasting On Type Ii-Diabetes Mellitus: A Case Study Report

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Abstract: ***Diabetes mellitus or type-2 diabetes, is one of the major non-communicable and fastest growing public health problems in the world, is a condition difficult to treat and expensive to manage. It has been estimated that the number of diabetes sufferers in the world will double from the current value of about 190 million to 325 million during the next 25 years. Individuals with type-2 diabetes are at a high risk of developing a range of debilitating complications such as cardiovascular disease, peripheral vascular disease, nephropathy, changes to the retina and blindness that can lead to disability and premature death. The fact indicates that obesity and physical inactivity may constitute the main reasons for the increasing burden of diabetes in the developed world. Raw diet food are made primarily of fruits, vegetables, nuts and seeds. Grains and legumes are permitted as well, but need to be soaked or sprouted before eating. Drinking "okra water" is a popular new method of using okra. Some have even suggested that drinking it helps lessen diabetes symptoms. The drink is made by putting okra pods in water and soaking them overnight. Some of the valuable nutrients in the skin and seed pods will be absorbed into the water. Drinking this okra water solution is a quick and simple way to derive the benefits of okra without eating it.***

Here in this case, effectiveness of dietary interventions in treating diabetes mellitus type 2 has been shown to be without side effects.

Keywords: Diabetes mellitus type 2, raw diet fasting, okra water.

I. INTRODUCTION

Diabetes mellitus is a progressive metabolic disease and it has affected considerable percentage of population throughout the world. Epidemiologic data indicated that 2.8% of the world's population was diabetic in the year 2000 and it may progress to 4.4% of the world's population by 2030. It affects all age groups of people and ethnic groups. In India, statistical analysis revealed that the number of diabetics will rise to 57 million in the year of 2025 compared to 15 million diabetics in 1995. The pathogenesis of both type 1 and type 2 diabetes are different, but hyperglycemia and its associated complications are common in both conditions. In diabetes, elevated level of lipid profile is commonly reported that increases the cardiovascular complications. Presently, diabetes is managed or controlled using pharmacologic agents and non pharmacologic methods, such as diet and exercise. However, all the pharmacologic agents are not devoid of adverse effects and it triggers scientific community to search for new drugs from all possible sources, including traditional medicines, which might be less toxic when compared to the available drug therapy. Moreover, diabetic complications lead to morbidity and mortality due to multiple defects in its pathophysiology. Presently, research is focused on traditional medicinal plants and herbs, which are used as potential alternative source to treat diabetes with its multiple pharmacologic actions. Several phytoconstituents possessing anti-diabetic activity were isolated and studied from many medicinal plants, but still scientists continue their research on medicinal plants to bring good anti-diabetic lead or drugs to the healthcare community. It also imposes important medical and economic burdens. Genetic susceptibility and environmental influences seem to be the most important factors responsible for the development of this condition.

However, a drastic increase of physical inactivity, obesity, and type-2 diabetes has been recently observed.

Fortunately, because environmental factors are modifiable, disease manifestation from these factors is largely preventable. Diet is one of the major factors now linked to a wide range of diseases including diabetes. The amount and type of food consumed is a fundamental determinant of human health. Diet constitutes a crucial aspect of the overall management of diabetes, which may involve diet alone, diet with oral hypoglycemic drugs, or diet with insulin. Diet is individualized depending on age, weight, gender, health condition, and occupation etc. The dietary guidelines as used in this review are sets of advisory statements that give quick dietary advice for the management of the diabetic population in order to promote overall nutritional well-being, glycogenic control, and prevent or ameliorate diabetes-related complications.[4]

Abelmoschus esculentus (L.) Moench., synonym of okra, known in many English-speaking countries as lady's fingers or gumbo is a flowering plant in the mallow family. It is valued for its edible green seed pods. It is an important vegetable and widely distributed from Africa to Asia, Southern Europe and America. In Asia, okra is typically prepared as traditional medicine as a dietary meal in the treatment of gastric irritations. The plant has a wide range of medicinal value and has been used to control various diseases and disorders. The fiber in okra helps to stabilize blood sugar by regulating the rate at which sugar is absorbed from the intestinal tract. It is a good vegetable for those feeling weak, exhausted, and suffering from depression and it is also used in ulcers, lung inflammation, sore throat as well as irritable bowel. Okra is good for asthma patients and it also normalizes blood sugar and cholesterol levels. Previous studies reported that okra polysaccharide possesses anticomplementary and hypoglycemic activity in normal mice. Also, okra polysaccharide lowers cholesterol level in blood and may prevent cancer by its ability to bind bile acids. Based on the above scientific data, current literature research revealed that lowering of blood glucose and cholesterol levels by okra in diabetic condition is scientifically not yet documented. Therefore, the present study was aimed to investigate antidiabetic and antihyperlipidemic potential of *Abelmoschus esculentus* (L.) Moench. peel and seed powders in streptozotocin-induced diabetic rats[5]. Some people prefer to cut the okra into thin slices instead of soaking the pods whole. If you are going to prepare okra water this way, be prepared for a drink that is slightly bitter.

II. CASE REPORT

A 65 year old men named Mr. Raja was suffering from type 2 diabetes mellitus since 9 years, with FBS value 173mg/dl, PPBS value 297mg/dl and HbA1C 9.9%. Hereby underwent the following diet pattern for 10 days with normal physical activity and the post changes were noted respectively. Hereditary history was nil. Symptoms were absent for the case. Increased sugar level was diagnosed with repeated health checkup.

He was under METFORMIN 1000mg, VOGLIBOSE 3mg, and VIDAGLIPTIN 50mg medications, this is now reduced to METFORMIN 500mg and VILDAGLIPTIN 50mg presently.

After careful examination, patient was treated with the following dietary interventions.

DIETETIC REGIMEN FOLLOWED FOR 15 DAYS

DAYS	6.00am	7.30am	11.00am	12.00pm	4.00pm	8.00pm
Day 1	Water drinking	Soaked ladies finger water drinking	Fruits or sprouts with methi or green gram sprouts	Wheat chappati, vegetable curry and buttermilk	Fruits or sprouts with methi or green gram sprouts	Raw vegetable salads and fruits
Day 2	Water drinking	Soaked ladies finger water drinking	Fruits or sprouts with methi or green gram sprouts	Wheat chappati, vegetable curry and buttermilk	Fruits or sprouts with methi or green gram sprouts	Raw vegetable salads and fruits
Day 3	Water drinking	Soaked ladies finger water drinking	Fruits or sprouts with methi or green gram sprouts	Wheat chappati, vegetable curry and buttermilk	Fruits or sprouts with methi or green gram sprouts	Raw vegetable salads and fruits
Day 4	Water drinking	Soaked ladies finger water drinking	Fruits or sprouts with methi or green gram sprouts	Wheat chappati, vegetable curry and buttermilk	Fruits or sprouts with methi or green gram sprouts	Raw vegetable salads and fruits
Day 5	Water drinking	Soaked ladies finger water drinking	Fruits or sprouts with methi or green gram sprouts	Wheat chappati, vegetable curry and buttermilk	Fruits or sprouts with methi or green gram sprouts	Raw vegetable salads and fruits
Day 6	Water drinking	Soaked ladies finger water drinking	Fruits or sprouts with methi or green gram sprouts	Wheat chappati, vegetable curry and buttermilk	Fruits or sprouts with methi or green gram sprouts	Raw vegetable salads and fruits
Day 7	Water drinking	Soaked ladies finger water drinking	Fruits or sprouts with methi or green gram sprouts	Wheat chappati, vegetable curry and buttermilk	Fruits or sprouts with methi or green gram sprouts	Raw vegetable salads and fruits
Day 8	Water drinking	Soaked ladies finger water drinking	Fruits or sprouts with methi or green gram sprouts	Wheat chappati, vegetable curry and buttermilk	Fruits or sprouts with methi or green gram sprouts	Raw vegetable salads and fruits
Day 9	Water drinking	Soaked ladies finger water drinking	Fruits or sprouts with methi or green gram sprouts	Wheat chappati, vegetable curry and buttermilk	Fruits or sprouts with methi or green gram sprouts	Raw vegetable salads and fruits
Day 10	Water drinking	Soaked ladies finger water	Fruits or sprouts with methi or	Wheat chappati, vegetable curry and	Fruits or sprouts with methi or	Raw vegetable salads and fruits

		drinking	green gram sprouts	buttermilk	green gram sprouts	

Table 1

III. PATIENT'S PRE AND POST REPORTS

BLOOD REPORTS AND GENERAL PARAMETERS

Parameters	Variables	Pre data	Post data
FBS	-	297	173
PPBS	-	105	101
HbA1C	-	9.9%	5.4%
Blood pressure	Systolic Diastolic	150mmHg 100mmHg	130mmHg 90mmHg

Table 2

IV. DISCUSSION

Many patients with type 2 diabetes eventually need insulin, as their ability to produce their own insulin from pancreatic beta cells declines progressively. The American Diabetes Association (ADA), in a consensus statement, has called for using insulin early in the disease if lifestyle management and monotherapy with metformin (Glucophage) fail to control glucose or if lifestyle management is not adequate and metformin is contraindicated. The ADA's goal hemoglobin A1c level is less than 7% for most patients.

In this case report, FBS and PPBS, has been improved considerably. Though there is no evidence till date which addresses influence of dietary intervention on diabetes mellitus o FBS and PPBS levels, they have indirect influence on HbA1C test also.

V. DIET AND DIABETES ACTION ON DIABETES MELLITUS

The beneficial effect of the dietary pattern on diabetes mellitus and glucose metabolism in general and traditional food pattern was associated with a significant reduction in the risk of developing type-2 diabetes. The dietary pattern emphasizes a consumption of fat primarily from foods high in unsaturated fatty acids, and encourages daily consumption of fruits, vegetables, low fat dairy products and whole grains, low consumption of fish, poultry, tree nuts, legumes, very less consumption of red meat. The composition of diet is one of the best known dietary patterns for its beneficial effects on human health that may act beneficially against the development of type-2 diabetes, including reduced oxidative stress and insulin resistance.

High consumption of vegetables, fruits, legumes, nuts, fish, cereals and oil leads to a high ratio of monounsaturated fatty acids to saturated fatty acids, a low intake of trans fatty acids, and high ingestion of dietary fiber, antioxidants, polyphenols. The diets are characterized by a low degree of energy density overall; such diet prevent weight gain and exert a protective effect on the development of type-2 diabetes, a condition that is partially mediated through weight maintenance. Greater adherence to the diet in combination with light physical activity was associated with lower odds of having diabetes after adjustment for various factors. On the other hand, a paleolithic diet (i.e., a diet consisting of lean meat, fish, shellfish, fruits and vegetables, roots, eggs and nuts, but not grains, dairy products, salt or refined fats, and sugar) was associated with marked improvement of glucose tolerance while control subjects who were advised to follow a diet did not significantly improve their glucose tolerance despite decreases in weight and waist circumference. People most likely to get diabetes are: People who are overweight, upper-body obesity, have a family history of diabetes, age 40 or older, and women (50% more often than men).

C. papaya could help islet regeneration manifested as preservation of cell size. In the liver of diabetic treated rats, *C. papaya* prevented hepatocyte disruption, as well as accumulation of glycogen and lipids. Finally, an antioxidant effect of *C. papaya* extract was also detected in diabetic rats.[7]

Fenugreek is a widely used herb for the treatment of diabetes mellitus (DM). Fenugreek is a plant that grows in parts of Europe and western Asia. The leaves are edible, but the small brown seeds are famous for their use in medicine. Fenugreek seeds may be helpful to people with diabetes. The seeds contain fiber and other chemicals that may slow digestion and the body's absorption of carbohydrates and sugar. The seeds may also help improve how the body uses sugar and increases the amount of insulin released. Fenugreek seeds (trigonella foenum graecum) are high in soluble fibre, which helps lower blood sugar by slowing down digestion and absorption of carbohydrates. This suggests they may be effective in treating people with diabetes. Multiple studies have been carried out to investigate the potential anti-diabetic benefits of fenugreek. Of these, several clinical trials showed that fenugreek seeds can improve most metabolic symptoms associated with both type 1 and type 2 diabetes in humans by lowering blood glucose levels and improving glucose tolerance.

VI. CONCLUSION

The case report shows remarkable changes in Diabetic status that improved from 10 days of dietary management. The change was sustainable through simple lifestyle modification and by adopting few simple Dietary changes at home. Considering the effects achieved in this case, Dietary changes could be used as safe and beneficial management for Diabetes Mellitus.

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