



DIETARY: NUTRITIONAL PRINCIPLES AND EXERCISE HABITS OF TYPE 2 DIABETES IN PUDUCHERRY POPULATION

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ABSTRACT Type II diabetes mellitus is a global health problem and one of the major causes of morbidity and mortality. Healthy nutritional habits are established in childhood and adolescence, which are considered the crucial periods in the human's life, because during them the human body is still developing and is being built up to maintain a healthy adulthood later on. In contrast, poor nutritional habits established in these periods are responsible for the development of chronic diseases. Appropriate use of diet and exercise can improve insulin sensitivity and glycemic control and decrease the need for oral medications or insulin. The total study was conducted in the SLIMS of puducherry for type 2 Diabetes patients in 30 Male and 30 Female, The patients were taken into the study with informed consent. To give information to the diabetics to not to take foods like rich in carbohydrate, fat and other fleshy foods. In our study most of the patients were the sweets, milk products and sweet fruits. 60% of the people were exercise mostly in the form of walking and formers are working regularly in the fields. In our study were given 60% of the patients were aware of diabetes and life style habits changed in the coastal south side area of puducherry . conclusion is to increase the awareness programme in and around the Puducherry population, prevention of diabetes and management of diabetes in Puducherry.

KEYWORDS : Diabetes mellitus, Physical activity, Nutrition, Blood Pressure.

INTRODUCTION:

Type 2 diabetes is the fourth or fifth major cause of death in most developed countries, and there is growing evidence that it has reached epidemic proportions in many developing countries (1- 4). Type 2 diabetes results from an interaction between a genetic aptitude, high-risk behaviors and environmental risk factors (5). Several lifestyle factors affect the incidence of type 2 diabetes. Obesity and weight gain significantly increase the risk (6-8), and physical inactivity further elevates the risk regardless of obesity (9, 10). Cigarette smoking is associated with a small increase (6, 11), and moderate alcohol consumption with a decrease (11, 12) in the risk of diabetes. In addition, a low fiber diet with a high glycemic index has been associated with an increased risk of diabetes (13), and specific dietary fatty acids may differentially affect insulin resistance and the risk of diabetes (14, 15). It is also known that lifestyle, and particularly dietary habits, play an important role in the development of diabetes. People with diabetes have to understand the ways and means to alter their dietary habits and to adjust to deviations from their daily routine.

The prevalence of diabetes is rapidly rising all over the globe at an alarming rate. According to the International Diabetes Foundation (IDF), the total number of diabetic subjects is to be around 40.9 million in india at present which is expected to rise to 69.9 million by the year 2025. Diabetes mellitus is a group of metabolic disorders of carbohydrate characterized by hyperglycemia. Diabetes is associated with various micro vascular and macro vascular complications. Now the Fastest culture in the cities develops and moves from traditional to modern living life style in the diet and physical activity. Diet and exercise are important components of the treatment strategy for adults with type 2 diabetes. Both are important factors for treatment to adults with type 2 Diabetes and it improves the insulin sensitivity and glycemic control and it decreases the medications and insulin. Faulty diet makes the best of medicine in effective. Based on this our study focussed on dietary habits and exercise behaviour of type 2 diabetes.

AIM OF THE STUDY:

Dietary management is important treatment programme in Diabetics as diet therapy, it is biggest problem in India. Exercise pattern also important in diabetics. Our study focused on dietary habits and exercise behaviour of diabetic patients.

MATERIAL AND METHODS:

The total study was conducted in the SLIMS of puducherry for type 2 Diabetes patients in 30 Male and 30 Female, The patients were taken into the study with informed consent.

RESULTS:

Table:1. General information of diabetics regarding Diabetes Mellitus

| Characteristics | Male(30) | | Female(30) | | Total(60) | |
|----------------------------|-----------|-------|------------|-------|-----------|-------|
| | Frequency | % | Frequency | % | Frequency | % |
| Age of onset | | | | | | |
| 40-50 | 10 | 33.33 | 10 | 33.33 | 20 | 33.33 |
| 50-60 | 20 | 66.66 | 20 | 66.66 | 40 | 66.66 |
| Duration | | | | | | |
| <1 | 7 | 33.33 | 14 | 66.66 | 21 | 42.00 |
| 1-5 | 14 | 66.66 | 7 | 33.33 | 21 | 42.00 |
| 5-10 | 9 | 42.86 | 9 | 42.86 | 18 | 36.00 |
| Family history of diabetes | | | | | | |
| Blood related members | 3 | 10.00 | 11 | 37.93 | 14 | 18.00 |
| Both parents | 6 | 20.00 | 4 | 13.79 | 10 | 30.00 |
| One parents | 5 | 17.80 | 15 | 49.00 | 12 | 52.00 |
| No family history | 16 | 53.00 | | | 26 | |
| Medication | | | | | | |
| Allopathi | 62 | 19.52 | 1 | 6.90 | 03 | 5.80 |
| No medication | 28 | 19.48 | 29 | 93.10 | 57 | 95.00 |

Table:2. Dietary pattern of Diabetics

| Meals | Male(30) | | Female(30) | | Total(60) | |
|----------------------|-----------|----|------------|------|-----------|----|
| | Frequency | % | Frequency | % | Frequency | % |
| Non-vegetarians | 12 | 40 | 15 | 50 | 27 | 47 |
| Vegetarians | 18 | 16 | 15 | 50 | 33 | 53 |
| Meals per day | | | | | | |
| Three meals | 07 | 22 | 10 | 24 | 17 | 24 |
| Three meals & snacks | 14 | 44 | 18 | 59 | 32 | 59 |
| Two meals | 0 | - | 1 | 3.50 | 01 | 02 |
| Two meals & snacks | 09 | 34 | 01 | 3.50 | 10 | 15 |

Table:3. Food restricted and avoided by Diabetics

| Food restricted | Frequency | % |
|-----------------|-----------|----|
| Fleshy foods | | |
| Mutton | 07 | 18 |
| Eggs | 01 | 03 |

| Fruits | | |
|----------------|----|----|
| General | 06 | 10 |
| Banana | 07 | 14 |
| Grapes | 03 | 05 |
| Foods provided | | |
| Jaggery,sugar | 28 | 56 |
| Milk products | 03 | 05 |
| Potato | 04 | 07 |
| banana | 02 | 05 |

Table:4.Foods especially included for management of Diabetes

| Foods included | % |
|-----------------------|---------|
| Inclusion of foods | 70 (42) |
| No inclusion | 30 (18) |
| Millets | |
| Ragi & ganji | 40 (24) |
| Roti | 30 (18) |
| Rice | 30 (18) |
| Fruits | |
| Citrus | 20 (12) |
| Vegetables | |
| Salads | 20 (12) |
| Green leafy vegetable | 30 (18) |
| Drumstick leaves | 5 (3) |
| Carrot juice | 5 (3) |
| Others (all mixed) | 40 (24) |
| Spices | |
| Seeds | 40 (24) |
| Milk | 40 (24) |

Table:5.Excise behaviour of Diabetes

| Characteristics | Subjects n=50 | | | | | |
|------------------------|---------------|----|-------------|----|------------|----|
| | Males (30) | | Female (30) | | Total (60) | |
| | Frequency | % | Frequency | % | Frequency | % |
| Regular exercise | | | | | | |
| Yes | 06 | 20 | 24 | 80 | 30 | 60 |
| No | 24 | 80 | 06 | 20 | 30 | 40 |
| Frequency of exercise | | | | | | |
| Daily | 24 | 40 | 12 | 40 | 36 | 60 |
| Twice a week | 12 | 20 | 18 | 60 | 30 | 40 |
| Type of exercise | | | | | | |
| Walking | 12 | 40 | 18 | 60 | 30 | 60 |
| Swimming | 0 | - | - | - | - | - |
| Yoga | 0 | - | 03 | 10 | 03 | 10 |
| Time spent on exercise | | | | | | |
| 1hr | 12 | 40 | 15 | 50 | 27 | 50 |
| 2hr | 06 | 20 | 03 | 10 | 09 | 10 |

DISCUSSION:

Physical activity is defined as the total of planned and repetitive movements of skeletal muscles, which are performed using energy. The beneficial effects of exercise in patients with type II diabetes have been recognized since antiquity, when Aristotle observed that the symptoms of diabetes significantly improved after exercise. Today, the beneficial role of exercise has been fully documented and exercise should be incorporated systematically in the treatment of patients with diabetes (16-21). Physical activity is beneficial for the mental state of the individual, because it increases the energy of the human body, improves self-esteem and decreases depression (16-21). Physical activity counseling should become an integral component of type II diabetes mellitus treatment and prevention. It is widely accepted that healthy nutrition is the basis for the treatment of type II diabetes. It contributes positively to the maintenance of blood glucose within normal range and minimizes the complications of the disease. Counselling patients to undertake physical activity and adopt proper dietary habits to prevent and treat type II diabetes mellitus becomes a primary prevention modality.(22-24)

Causes of increase in incidence of diabetics include, improved nutrition, better hygiene, control of many communicable disease. It improve access to quality healthcare and the main drivers of diabetes epidemic in india are fast food culture and sedentaryism. Majority of diabetics were non vegetarians(60%).In our study all the patients were taken 3meals and one snacks per day(44%). There is a need to give proper counseling to take the breakfast and don't skip it and diabetics to

consume the meals regularly. To give information to the diabetics to not to take foods like rich in carbohydrate, fat and other fleshy foods. In our study most of the patients were the sweets, milk products and sweet fruits. More than 60% of the patient in our study they avoided sugar, jaggery 5%, milk product12% and sweet 7% Observed information was given by the concern physician of the diabetic patient. 50% of the people were had family history of diabetes and most of them were in allopathic treatment. They were well known of the foods to be restricted hypoglycemic foods and other special foods beneficial for diabetes progression of the management. 60% of the people were exercise mostly in the form of walking and formers are working regularly in the fields. In our study were given 60% of the patients were aware of diabetes and life style habits changed in the coastal south side area of puducherry .

Development and evaluation of healthy lifestyle plans, focusing on the following aspects: Prevention and early treatment of overweight and obesity, especially in high risk groups. Active lifestyle including regular physical activity at least an hour a day, and vigorous activities necessary to reduce the risk of type 2 diabetes. Rapid identification of individuals at risk of type 2 diabetes. Identifying individuals at risk of high blood pressure, diabetes and heart disease. Healthy lifestyle programs and their interventions should be specified for each age group and their develop mental stages. Dietary recommendations for the management of diabetes should focus more on the quality and quantity of carbohydrates and fats in the diet in addition to balancing total energy intake with expenditure. Diet for people with diabetes should be individualised, with consideration given to each individual's usual food and eating habits, metabolic profile, treatment goals, and desired outcomes. Monitoring of metabolic parameters, including glucose, HbA1c, lipids, blood pressure, body weight, and renal function, when appropriate, as well as quality of life is essential to assess the need for changes in therapy and to ensure successful outcomes (23-24). Patients with type II diabetes should be constantly informed about the crucial role of nutrition and exercise in the management of the disease. Lack of understanding of the beneficial effects of dietary choices and exercise in the regulation of type II diabetes, may lead to inappropriate treatment methods. Increasing physical activity levels can be achieved by a variety of means, including public health programs and community-based interventions. The current challenge is translating research findings into routine clinical practice and public health efforts to improve health outcomes for all individuals with type 2 diabetes.

CONCLUSION:

Who are all educators and working people, they were aware of diet and exercise. Who are all coming from village patients (24 nos.) were not aware of exercise, But they are working in the agriculture paddy field to consume the food. Who are all living in the city their lifestyle habits were changed but in that very few are going for exercise? Our conclusion is to increase the awareness programme in and around the Puducherry population, prevention of diabetes and management of diabetes in Puducherry.

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