

BEYOND DRUGS: PROMOTING WELL BEING WITH LIFESTYLE INTERVENE FOR DIABETES

Pharmaceutical Science

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ABSTRACT

The survey aims to gain an understanding about the management of glucose levels by regulating diet (both the quality and quantity of food consumed) and spreading awareness among the diabetic patient about lifestyle modification. This is a prospective observational study among the diabetic patient that incorporates food pattern, exercise, nutrition, and other lifestyle modification for duration of 6 months. In this study 170 patients were included to determine the non-pharmacological treatment impact on the Diabetic patients. The study reveals about the comparison made in regards to age and gender of patient alongside non-pharmacological factors. The results are of precise statistical analysis. The study confirms neither single handedly diet nor the exercise alone helps in managing diabetes but neither diabetes nor exercise in combination gives a significant result. Diet and Exercise along with stress management which means meditation or yoga gives amazing results to the patients. Obviously anti diabetic drugs are there and are used to control blood sugar levels but through these simple lifestyle modifications one can avoid adverse effects of anti-diabetic drugs and maintain a good quality of life.

KEYWORDS

Diet, Glucose, Life Style and Diabetes Milletes

I. INTRODUCTION

Diabetes Mellitus

Blood glucose regulation is impacted by diabetes mellitus, a prevalent chronic medical condition. The bloodstream's regulated supply of glucose serves as a vital source of energy for cells. High levels of blood sugar are caused by the body insufficient in the production of insulin, (Hormone responsible for regulation of blood glucose levels). Weight loss, increased thirst and other symptoms are co related to the condition that impacts multiple organs.

The WHO seeks to drive and facilitate the implementation of practical strategies for the therapeutic assessment reduction of diabetes for its complications.

- For preventing non communicable diseases including diabetes.
- Raise public awareness of diabetes among all people worldwide.
- Educate people about diagnosing and treating diabetes mellitus.
- Monitor diabetes and the risk factors associated with it.

A global initiative was taken by WHO for sustained improvement in diabetes prevention and care in April 2021. Patient with diabetes often have shorter life span as a result of development of major diseases¹⁻²

Classification

Diabetes is a heterogeneous complex metabolic disorder characterized by elevated blood glucose concentration. The Diabetes can be classified as follows:

1. Type 1 Diabetes Mellitus:

T1DM occurs due to self-destruction of pancreatic beta-cells. It occurs in children and adolescent at any age. It is also called as juvenile diabetes.

Furthermore, It is distinguished as follows:

I) Immune Mediated:

It is distinguished by self-attack of beta cells, which will result in insulin insufficiency.

II) Idiopathic:

The cause of this type of diabetes is unknown. Though it can be distinguished by insulin insufficiency and developing of ketoacidosis.

Type 1 Diabetes Mellitus treatment can be accomplished by providing care to the patient by continuous monitoring of blood glucose levels, diet plan, sleep pattern, stress management and insulin therapy³⁻⁵.

2. Type 2 Diabetes Mellitus:

T2DM is also known as Non-Insulin Dependent DM that does not require insulin. It is characterized by Insulin resistivity or due to delayed insulin secretion by pancreatic cells.

Following a proper diet, regular exercise, weight loss if overweight, monitoring the random sugar levels and its medication can help control the condition in the body and lower its risk.

3. Gestational Diabetes:

Gestational Diabetes is found during pregnancy. In most women the disorder develops in third trimester, and at least six months after the pregnancy ends, the women should undergo a oral glucose tolerance.

3. Secondary Diabetes:

It occurs after the destruction of β cells in pancreas or the insulin resistance. It's a risk factor for other medical conditions⁷⁻¹⁰

II. METHODOLOGY

Study Design:

The prospective observational study among the diabetic patient that incorporates food pattern, exercise, nutrition, and other lifestyle modification for duration of 6 months.

Collection of Data:

This data is collected by using a well-designed patient profile form. It includes the following patient details:

- Patient Demographics
- Patient medical record
- Patient medication history

Inclusion Criteria

- T1DM and T2DM.
- Other comorbidities like hypertension
- Outpatient

Exclusion Criteria

- Infants
- Pregnant woman

Method and Collection of Data:

- Patient query form
- Patient interview
- Patient prescription

Time Frame of Study:

The study will be conducted for 6months.

Place of Study:

CARE HOSPITALS, HYDERABAD.

III. RESULTS

1. Relationship Between Normal Diet and Soft Diet with Respect to Age Group

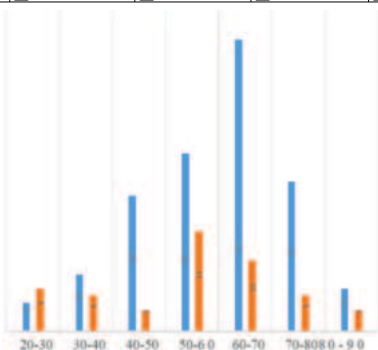
Table1: T-test

Age group	Normal diet(x_1)	Softdiet(x_2)	$(x_1)^2$	$(x_2)^2$
20-30	6	4	36	16
30-40	10	3	100	9
40-50	19	3	361	9
50-60	29	10	841	100
60-70	35	16	1225	256
70-80	18	8	324	64
80-90	3	6	9	36
	$\sum x_1 = 0$	$\sum x_2 = 0$	$\sum x_1^2 = 6$	$\sum x_2^2 = 0$

2. Manifesting Gender Distribution Among Several Age Groups.

Table 2: T-test

Age Group	Male	Female	x_1^2	x_2^2
20-30	4	6	16	36
30-40	8	5	64	25
40-50	19	3	361	9
50-60	25	14	625	196
60-70	41	10	1681	100
70-80	21	5	441	25
80-90	6	3	36	9
	$\sum x_1=124$	$\sum x_2=46$	$\sum x_1^2=3224$	$\sum \sum x_2^2=400$

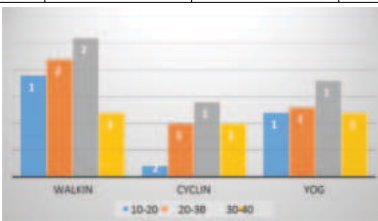


Graph2: Representing Gender Distribution Among Several Age Groups.

3. Relationship Between Type of Exercise and BMI Range

Table: 3 One Way Anova

BMI RANGE	Walking	Cycling	Yoga
10-20	19	2	12
20-30	22	10	13
30-40	26	14	18
40-50	12	10	12
Total:	76	36	55



Graph3: Representing Relationship Between Type of Exercise and BMI Ranges.

Table4: Represents Type of Diet

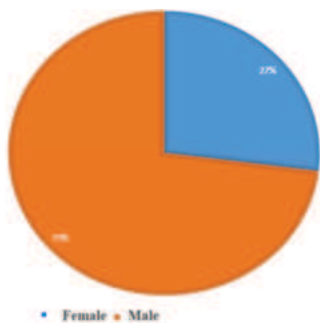
Diet	CountofDiet	Percentage
NormalDiet	120	71%
SoftDiet	50	29%
GrandTotal	170	100%

Count of Diet



Graph: 4 Represents Percentage of Normal Diet and Soft Diet Taken by the Patient in the Study.

Gender Distribution

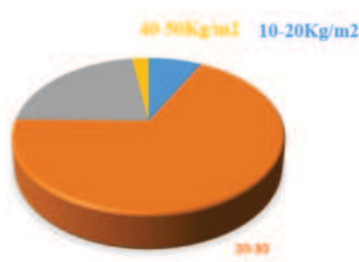


Graph: 5 Represents Percentage of Gender Distribution Among the Patients.

Table:6 BMI Range

BMI	BMIRANGE
10-20Kg/m2	13
20-30Kg/m2	115
30-40Kg/m2	38
40-50Kg/m2	4

BMI Range



IV.DISCUSSION

Lifestyle interventions play a crucial role in managing diabetes beyond medication. Incorporating a balanced diet, regular exercise, stress management and sufficient sleep routine can contribute to overall well-being and better diabetic control.

In our study, we proved that in the diabetic patients the non-pharmacological interventions are also important. We have done the research on symptoms, risk factor, complications, dietary management for better life style of diabetic patients. The statistical calculations were done which included T-test and ANOVA. Relationship between normal diet and soft diet with respect to age group is performed by the statistical method called T-test. T-test shows the majority of patients

taking normal diet rather than soft diet. And the NULL hypothesis is rejected. There is significant difference between the normal and soft diet and manifesting gender distribution among several age groups. Demographical factors influence the gender distribution among age groups. For the determination of gender distribution between male and female the statistical method used is T-test. There is significant difference and the NULL hypothesis is rejected or relationship between type of exercise and BMI ranges. According to the types of exercise done by the diabetic patients and their BMI ranges. For this ONEWAYANOVA is performed to find out the types of exercise patients are doing. The exercises include walking, cardio, and yoga etc.. 60-70 years range highly prefers walking. Majority of patients among all age range are prefer walking. The NULL hypothesis is rejected. On pharmacological treatment in diabetes plays crucial role in managing blood sugar levels and overall lifestyle¹¹⁻¹³.

Limitations and Recommendations

Limitations:

- Paediatrics
- Pregnant woman

Recommendation:

Medical Nutrition Therapy:

The dietary plan is necessary for an individual to have better well-being and lifestyle.

MNT can help to balance the blood sugar, blood pressure, and BMI.

Physical Activity:

Any kind of activity can increase expenditure.

Physical activity can help to lower glucose levels, maintain blood pressure, cholesterol and body fat.

Sleep management is also important.

Diabetes Self-management Education and Support:

It is important to acknowledge skills and manage their conditions effectively. It helps to delay complications and enhance QOL.

Regular check-up is needed.

Psychosocial Care:

Emotional and mental health support for diabetic patients. Psychosocial care helps to manage stress, depression and anxiety. Consult healthcare professionals for better advice¹⁴⁻¹⁷.

V. CONCLUSION

In the study total 170 subjects were taken evaluating the lifestyle modifications taken from the diabetic patient. The study mainly focuses on controlling the DM with non-pharmacological treatment rather than using anti diabetic drugs. In our study men are more prone to diabetes than females. 73% of males are found in study to be diabetic whereas 23% are of females. Weight management plays a crucial role in controlling diabetes. According to the study BMI of diabetes patient is relatively higher as that of 20-30 kg/m² and BMI range is 115. Soft diet is preferred rather than normal diet for diabetic patients. Patients suffering from type 2 diabetes mellitus on an average consume 71% of normal diet and 29% of soft diet. From the study we can conclude that modifying small changes in one's lifestyle can make up a bigger difference. It's mainly consisting of 4 simple effective measures

DIET: Taking soft diet which includes more of fruits, veggies and millets along with low-fat milk.

STRESS: Stress management is extremely essential for controlling diabetes. Meditation and yoga are important for managing stress levels which results in controlled blood sugar levels.

EXERCISE: As the body becomes insulin resistant or reduced insulin levels are present in diabetic patients that means body is not taking up insulin as needed, at this point comes the crucial play of exercise comes. Exercise helps to take up the insulin and use it as energy for doing physical activity. The study confirms both single handedly diet nor the exercise alone helps in managing diabetes but both diabetes and exercise in combination gives a significant result. Diet and Exercise along with stress management which means meditation or yoga gives amazing results to the patients. Obviously anti diabetic drugs are there

and are used to control blood sugar levels but through these simple lifestyle modifications one can avoid adverse effects of anti-diabetic drugs and maintain a good quality of life.

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