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STUDY TO CORRELATE THE NUTRITIONAL STATUS AMONG MALE AND FEMALE DIABETIC PATIENTS

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ABSTRACT

A comparative study of nutritional status among diabetic males and females was conducted. Multistage stratified random sampling technique was used for selecting 100 samples in both male and females and an interview schedule was developed to collect information regarding socioeconomic profile, dietary pattern *etc.* Dietary intake between male and female diabetics were highly significant but age, BMI, *etc.* between males and females were insignificant. Consumption of high fat and carbohydrate diet was revealed as the major contributing cause of disease in both males and females.

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KEY WORDS : Blood sugar, Diabetes, Females, Males

Introduction

Diabetes mellitus is a chronic metabolic disorder that prevents the body to utilize glucose completely or partially. It is characterized by high blood glucose concentration in the blood and alteration in carbohydrate, protein and fat metabolism. This can be due to failure in the formation of insulin. In contrast, insulin deficiency in a poorly controlled exercise results in increase of glucose concentration and free fatty acids release continues with minimal uptake. This can result in large increase in plasma glucose and ketone levels. Observational studies addressing physical activity, weight loss and dietary intake of whole grains and fiber *etc.*, provided evidences for factor that might delay or prevent type-2 diabetes ¹. Nutritional status is the condition of health of individuals as influenced by the utilization of the nutrient. It can be determined only by the correction of information through a medical and dietary history, although by physical examination and appropriate laboratory investigations. Diabetes is one of the most common diseases. People are at greater risk

of diabetes due to improper dietary practice, unhealthy life style, socioeconomic situation, mental stress and lack of physical exercise ^{2,3}. Too much fat especially saturated from meat or dairy product contains too much sugars, calories and not enough whole grains. Fruits and vegetables are the primary dietary problem challenging the population. The present study is an attempt to know the nutritional status among male and female diabetic patients and correlate the nutritional status among male and female diabetic patients.

Material and Methods

The study was carried out in 100 diabetic male and female diabetic subjects from local hospitals of Agra city. Multistage stratified random sampling technique was used in the selection of samples. An interview schedule was evolved to collect the information regarding socio-economic profile, dietary information and specific information regarding this disease. Nutrient intake was assessed by 24 hrs food recall method. The subjects were asked to report the food items

TABLE-1 : Distribution of male and female respondent according to age

Age in Years	Sex of the respondents				Total	
	Male		Female			
	No.	%	No.	%	No.	%
35-45	6	12.50	5	9.61	11	11.00
45-55	4	8.33	13	25.00	17	17.00
55-65	16	33.33	27	51.92	45	45.00
65-75	16	33.33	5	9.61	21	21.00
75-85	6	12.50	2	3.84	8	8.00
Total	48	48.00	52	52.00	100	100.00
Mean	61.08		55.17		58.01	
SD	11.46		8.16		16.31	
t	2.088					
P	<0.05					

TABLE-2 : Distribution of the Male and female respondents according to blood sugar level

Blood sugar level (mg/dl)	Sex of the respondents				Total	
	Male		Female			
	No.	%	No.	%	No.	%
Below 100	11	22.91	5	9.61	16	16.00
100-150	16	33.33	12	23.07	28	28.00
150-200	8	16.67	12	23.07	20	20.00
200-250	6	12.50	18	34.61	24	24.00
250-300	7	14.58	5	9.61	12	12.00
Total	48	48.00	52	52.00	100	100.00
Mean	156.42		176.00		166.60	
SD	65.25		55.43			
t	1.621					
P	>0.05					

TABLE- 3 : Correlation between ages with various nutrient intakes among male diabetic patients

Parameters	Unit	Statistical Values				
		Mean	SD	r	t	p
Age	Year	61.08	11.46			
Calories	Kcal	1480.10	120.26	+0.054	0.367	>0.05
Protein	g	31.67	1.58	-0.205	1.421	>0.05
Calcium	mg	588.07	53.93	+0.157	1.078	>0.05
Vitamin A	µg	1640.64	118.86	+0.320	2.291	<0.05
Vitamin B ₁	mg	1.13	0.08	-0.001	0.007	>0.05
Vitamin C	mg	28.33	15.28	+0.030	0.204	>0.05
Iron	mg	26.01	3.11	-0.195	1.348	>0.05
Fat	g	30.84	2.04	+0.103	0.702	>0.05
Riboflavin	mg	0.60	0.05	+0.599	5.074	<0.05
Niacin	mg	13.33	1.53	-0.031	0.210	>0.05
Carbohydrate	g	226.51	9.34	-0.112	0.764	>0.05
Fiber	g	6.73	0.91	+0.127	0.868	>0.05
sodium	mg	82.46	8.53	+0.318	2.275	<0.05

consumed along with their raw ingredients. These were recorded in standard volumetric method and later it was converted in raw weight of foods *i.e.* groups and nutritive values were calculated using the food Tables as recommended by ICMR.

Result and Discussion

Table-1 reveals the distribution of male and female respondent according to age. Out of 100 diabetic patients, majority of them (45.00%) were in the age group of 55-65 yrs, followed by 21.00% in the age group of 65-75 yrs and the minimum 8.00% in the age group of 75-85 years. Out of the male diabetic patients, majority of them (33.33%) were in the age group of 55-65 and 65-75 years, followed by 12.50% each in the age group of 75-85 years and 35-45 yrs and the minimum 8.33% were in the age group 45-55 yrs. Out of the female diabetic

patients, majority of them (51.92%) were in the age group of 55-65 years, followed by 25.00% in the age group of 45-55 years and the minimum 3.84% were in the age group 75-85 years. Further Table shows that mean age of male diabetic patients was found to be 58.01 yrs which was more among male diabetic patients (61.08) as compared to female diabetic patients (55.17 yrs). Statistically, significant difference regarding mean age was observed between male and female diabetic patients ($t = 2.988, p < 0.05$)⁴.

Table-2 reveals the distribution of the male and female respondents according to blood sugar level. Out of 100 diabetic patients, majority of them (28.00%) were having the present blood sugar level of 100 -150, followed by 24.00% having the present blood sugar level of 200 -250 and the minimum

TABLE- 4 : Correlation between ages with various nutrient intakes among female diabetic patients

Parameters	Unit	Statistical Values				
		Mean	SD	r	t	p
Age	Year	55.17	8.16			
Calories	Kcal	1513.52	113.24	-0.164	1.176	>0.05
Protein	g	32.25	1.97	-0.272	1.990	<0.05
Calcium	mg	586.26	44.24	-0.002	0.014	>0.05
Vitamin A	µg	1689.67	150.39	+0.282	2.078	<0.05
Vitamin B ₁	mg	1.11	0.07	-0.037	0.262	>0.05
Vitamin C	mg	26.74	10.14	-0.036	0.255	>0.05
Iron	mg	26.36	2.46	-0.014	0.099	>0.05
Fat	g	30.71	1.90	+0.044	0.311	>0.05
Riboflavin	mg	0.63	0.11	+0.188	1.353	>0.05
Niacin	mg	13.28	1.65	+0.080	0.568	>0.05
Carbohydrate	g	227.93	10.18	-0.209	1.511	>0.05
Fiber	g	6.51	0.89	+0.085	0.603	>0.05
sodium	mg	80.43	7.22	+0.273	2.007	<0.05

12.00%. having the present blood sugar level of 250 -300. Out of the male diabetic patients, majority of them (33.33%) were having the present blood sugar level of 100-150, followed by 22.91% having the present blood sugar level of below 100 and minimum 12.50% were having the present blood sugar level of 200 -250. Out of the female diabetic patients, majority of them (23.61%) were having the present blood sugar level of 200-250, followed by 23.07% having the present blood sugar level of 100-150 and 150-250 and minimum 9.61% each were having the present blood sugar level of below 100 and 200-300 respectively. Statistically no significant difference regarding mean present blood sugar level was observed between male and female diabetic patients even at 5% level of significance. This difference might be occurred due to performing exercise, restricted diet and taking proper

medicine⁵.

Table-3 reveals the correlation between ages with various nutrient intakes among male diabetic patients. Positive and significant correlations were observed between the age with nutrient intake of vitamin A, riboflavin and sodium were observed among the male diabetic patients ($p < 0.05$) i.e. as the age of male diabetic patients increases, vitamin A, riboflavin and sodium also increase and vice-versa. While positive and insignificant correlations were observed between age with nutrient intake of calories, Vitamin C, fat and fiber were observed among the male diabetic patients even at 5% level of significance. However, negative and insignificant correlations were observed between age with nutrient intake of protein, iron, niacin and carbohydrate among the male diabetic patients even at 5% level of

significance.

Table-4 depicts the correlation between ages with various nutrient intakes among female diabetic patients. Positive and significant correlations were observed between the age with nutrient intake of vitamin A, and sodium were observed among the female diabetic patients ($p < 0.05$) *i.e.* as the age of female diabetic patients increases, vitamin A and sodium also increase and *vice-versa*. While positive and insignificant correlations between age with nutrient intake of fat, riboflavin, niacin and fiber were observed among the female diabetic patients even at 5% level of significance. Positive and significant correlation between age with nutrient intake of protein was observed among the female diabetic patients ($p < 0.05$) *i.e.* as the age of the female diabetic

patients increases, protein intake decreases and *vice-versa*. However negative and insignificant correlations were observed between age with nutrient intake of calories, calcium, Vitamin B₁, Vitamin C, iron, niacin and carbohydrate among the female diabetic patients were observed even at 5% level of significance.

Conclusion

From the study it is evident that nutritional status of both male and female diabetic patients were highly significant but on contrary the results like age, BMI, blood sugar level, food habit profile *etc.*, in both diabetic patients showed insignificant. It may be due to poor nutritional status, poor diet and lack of exercise *etc.* So, as per our study, the diabetes can be controlled by regular exercise, sugar restricts, diet and good nutritional status.

References

1. BOULE, N.G., HADDAD, E., KENNY, G.P. *ET AL* (2001) Effects of exercise on glycemic control and body mass in type 2 diabetes mellitus: a metanalysis of controlled clinical trials, *JAMA*, **286** (10) 1218-27.
2. FOREYT, J.P., POSTON AND CARLOS, W.S. (1999) The challenge of diet, exercise and lifestyle modification in the management of the obese diabetic patient. Source: *International Journal of Obesity & Related Metabolic Disorders. Supplement*, **23**, ps5. 1p.
3. FRANZ, M.J., WARSHAW, H., DALY, A. E., GREEN, PASTORS, J., ARNOLD, M.S., AND BANTLE, J. (2003) Evolution of diabetes medical nutrition therapy *Post grad Med J*; **79**:30–35
4. RONALD, KLEIN, M.D., BARBARA, E. K. KLEIN, M.D., SCOT, E., MOSS, M.A., MATTHEW, D., DAVIS, M.D., DAVID, L. AND DEMETS, P.H.D. (1984) The Wisconsin Epidemiologic Study of Diabetic Retinopathy III. *Prevalence and Risk of Diabetic Retinopathy When Age at Diagnosis Is 30 or More Years Arch Ophthalmol.* ; **102** (4):527-532.
5. SHAH, M. GARG (1996) High fat carbohydrate diets and energy balance *Diabetes Care*, **19**: 1142-52.