

A STUDY ON PREVALENCE AND NUTRITIONAL STATUS OF NIDDM PATIENTS WITH OBESITY

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ABSTRACT

The present study was aimed to investigate prevalence of NIDDM with obesity two hospitals were selected. For particulars' the study Govt. General Hospital Guntur and Sai hospitals (Guntur). A total of 1200 members aged 35-75 yrs took part in the procedure was used to select the subjects. All subjects belong to Guntur population, Andhra Pradesh. Anthropometric measures namely Height, Weight and Waist hip ratio were collected using standard techniques. The BMI (Body mass index) of the NIDDM Patients with obesity were calculated using the wt/Htm^2 (WHO stands). Nutritional Index (NI) was taken. 24 hrs recall-methods is used for dietary assessment (NOTE: 3days diet were collected and average values were taken). Nutrients were calculated namely, Energy, protein, fat, Carbohydrates, calcium, Iron, Vit-A, B-Complex Vitamins, B1, B2, B6, B12, folic acid, Vit C, fiber and sodium.

Keywords: Non Insulin Dependent Diabetes Mellitus (NIDDM), Anthropometry, Dietary Intakes.

INTRODUCTION

Diabetes mellitus is a major global metabolic disorder of current century. This pandemic characterized by excessive sugar in the blood (hyperglycemia) due to deficiency in production of insulin by the pancreas or by the ineffectiveness of the insulin produced. Diabetes affects almost every cell in the body and essential biochemical processes that cause severe effects on health¹.

The hereditary background again, obesity, dietary impudence, endocrine, imbalance, psychic stress, reduction in physical labour and discriminated social structure are the important factors that have exploded the prevalence of diabetes in India and other affected countries²⁻⁴. It is estimated that in year 2000 about 171 million people were affected with diabetes worldwide and this is expected to double by the year 2030⁵. In Indian more than 35million people suffering from diabetes. It is likely that

these figures are a gross under estimation of the problem particularly considering the fact that 50% of diabetics in India do not know that they suffer from diabetes⁶. Due to lack of definitive symptoms in early stage of diabetes its prevention in early stage is also a challenge. Diabetic patients have a considerable risk for cardiovascular disorder which further compounds the medical and public health challenges. Up to 80% death within this high risk population are due to associated cardiovascular disease^{7,8}.

METHODOLOGY

120 NIDDM samples were taken for the purpose of the study. Background information, age, sex, occupation and duration of diabetes. Anthropometrics measurement namely BMI, NI were taken. $Wt\ kg/m^2$ (WHO standards).

Dietary intakes 24hrs recall method issued to collect the information Energy, Prot, fat.

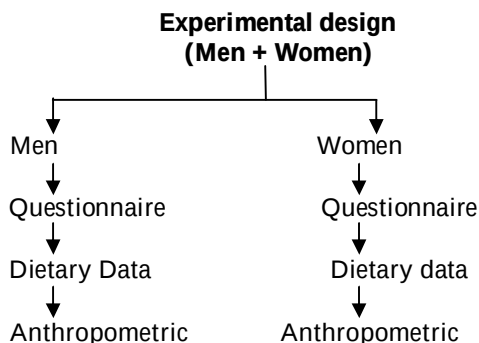


Table 1: General information of diabetic men and Women with number and percentage

S. No.	Details	Female n = 70	Male n = 50
1.	Age		
	a. 35-44	23(32.8)	17(34)
	b. 44-54	24(34.2)	16(32)
	c. 55+	23(32.8)	17(34)
2.	Activity		
	Heavy	3(4.2)	2(4)
	Moderate	12(15.7)	10(20)
	Secondary	42(60)	47(94)
3.	Income		
	<5000	4(5.7)	5(10)
	5000 to 10000	15(21.4)	12(24)
	>10000	34(48.5)	50(100)
4.	Type of family		
	Nuclear	47(67.1)	52(104)
	Joint	12(17.1)	9(18)
5.	Educational Qualification		
	Post graduation	2(4)	3(4.2)
	Graduation	12(24)	20(28.5)
	Matriculation	26(52)	7(10)
	Primary education	6(12)	31(44.1)
	Secondary education	..	5(7.14)
	School dropouts	4(8)	4(5.7)
6.	Diet preferences		
	Vegetable	8(11.4)	3(6)
	Nonnegotiable	62(88.5)	47(64)
7.	Personal habits		
	Smoking		22(44)
	Alcohol		12(24)
	Both		16(32)
8.	Duration of diabetes		
	< 5 years	18(25.7)	10(20)
	> 5 years	52(74.2)	40(50)

RESULTS AND DISCUSSION

With regard to the activity onset of diabetes, type of family, education, diet preference and personal habits.

A total of 120 subjects selected for this study. There are divided as females and amles these are aghain divided tinto three groups 35-44, 45 to 54 and 55+. N= (18) 25.7% of the female have < 5 yrs.N=(52) 74.2% the female had it. Since > 5 yrs, N= 10 (20%) of the male subjects diagnosed < 5 yurs and (n=40) 80% of the male subjects had the disease > 5yrs. The activity level of the

subjects of the sample, the average of range of subjects was 50 to 60 yrs. The activity profile of the subjects showed that 60%(n=42) were sedentary workers in females 94%(n=47) were sedentary work in males (15.7% (n=11) were mode work in females 20%(n=10) were mode work in males only. 402% (n=3) were heavy workers and 4%(n=2) were heavy work in males.

Educational Qualification of the subjects of the sample showed that there are 4%(n=2) were post graduation in male, 4.2%(n=3) were post graduate in female, 24%(n=12) were graduate in males, 28.5%(n = 20) were graduates in females, 52% (n=26) were matriculations in males, 10(n=7) were matriculation females, 12%(n=6) were primary education in male, 44%(n=31) were primary education in female. No secondary education subjects in males 7.14%(n=5) were secondary education in females 8%(n=4) were dropouts out in males, 5.7%(n=4) were dropout in females.

Vegetarian and non Vegetarian 11.4 %(n=8) in female, 6 %(n=3) were vegetarians in male, 88.5 %(n=62) were non-vegetarian in females, 94% (n=47) were non vegetarian in female. Personal habits 44 %(n=22) were cigarette smokes, 14%(n=12) had habit of alcohol on 32%(n=16) had habit of both alcohol and cigarette smoking.

Table 2: Mean anthropometric data and blood pressure readings of the subjects

S. No.	Details	Mean±SD range of the subjects	
		Males n=50	Females n = 70
1	Height (m)	1.70 ±0.008 (1.54- 1.83)	1.57 ±0.06 (1.45-1.68)
2.	Weight	71.60 ±10.86 (52.0 – 97.6)	74.99 ±8.81 (50.4 -80.5)
3.	Body mass index (BMI)	31.296± 6.67 (50.73-10.90)	34.4.17 ±7.9 (52.34± 8.2)
4.	Waist measurements	0.98 ±0.10 (0.80-1.24)	78-122 (0.91± 0.07)
5.	Hip Measurements	138.83 ±12.99 (90-140)	0.78 ±1.11 (72.0-137.0)
6.	Waist to Hip	87± 7.55 (0.80-1.24)	72± 9.04 (0.78-1.11)
7.	Systolic blood	121.83±12.99 (90-140)	124.08±9.04 (110-160)
8.	Diastolic measures		80-100

Table 2 shows the mean values of the BMI of the males and females regard from 16.2 to 28.8 and 16.6 to 27.7 and the grand means were 31.2 and 34.1 respectively. The female subjects showed slightly higher BMI than male subjects. When the BMI the mean values of the NI of the males and females ranged from 35-45 the grand means were 50.7 and 52.3 respectively.

Mean values of the waist measurements if male and female subjects of the sample ranged from 80 to 131cm and 78 to 122 cms with the grand means of 97.8cms and 93.4cm respectively. The mean values of Hip measurements of the male and female subjects ranged from 82 to 130cm and 72 to 132 cm with the grand means of 98.2 and 101.0 cms respectively.

The mean values of waist to Hip ratio (WHR) of males and females range from 0.80 to 1.24 and 0.78 to 1.11 with grand means of 0.98 and 0.91 respective the WHR has been n used as a measure of fat distribution, as it has been found to correlate highly with intra abdominal based fat mass.

In the population studied the means SBP has been found to be 10 to 12 mm of Hg higher in diabetic subjects compared to the general population. About 40 to 60% of NIDDM subjects have hypertension conversely subjects with hypertension have significantly more. Hypertensive subjects may be increasingly more susceptible to develop diabetes mellitus.

In view of deleterious effects of hypertension on the vascular complication of D.M. antihypertensive therapy should be more aggressive in diabetic subjects. The aim of treating a diabetic with hypertension is to ensure a standing BP of about 120/80 mm of Hg⁹. The principles of treatment include, mild to moderate wt loss sodium intake of 80 to 100mmol/ day. Increased fiber intake, regular exercise, medication cessation of smoking and entail alcohol consumption.

Table 3: Mean Nutrient Intake of Males and Females

Nutrients	Males actual values	Males standard values	Females actual values	Female standard values
Energy(K.Cal)	2527.25±0.59	1800	2326±22.03	1500
Protein(gms)	54.8±0.62	60	58.4±0.73	50
Carbohydrates (gms)	340±0.27	200 - 250	350±0.84	200 - 250
Fat(gms)	68.27±4.41	30 - 40	43±5.62	30 - 40
Calcium(mg)	788.48±62	1000	720±89	1000
Iron(mg)	12.19±0.67	28	16.11±0.93	28
Vitamin A(I.u)	1077±54	2400	1225±71	2400
Vitamin C(mg)	38.108±504	40	39.7±42	40
Folic Acid(mg)	174.0±14.11	100	94.5±27	100

RDA Source: Diabetic self care foundation, India

Table 3 shows the mean major nutrient intakes Energy, Protein and Fat of both Males and Females are higher than the RDA. The remaining nutrients folic acid is also higher than the RDA. The Micro minerals namely Iron; Calcium is less than the RDA in both Males and Females. Vit A and Vit C are lower than the

RDA in both males and females. Medical Nutrition therapy(MNT) is preferred term and should replace other terms, Such as diet, diet therapy and dietary management is an Integral component of diabetes management and diabetes self management education¹⁰.

CONCLUSION

From this study it was observed that the NIDDM patients with obesity, anthropometric measurements are higher than the BMI. Every individual is required to maintain an appropriate energy intake is needed. Higher BMI is associated with dietary intakes. Hence much attention needs to be paid to the dietary and exercise aspects of NIDDM patients with obesity and to maintain normal fasting blood glucose levels.

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