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Original Article

Nutritional Status of Diabetic Patients Attending to a District Level Diabetic Center

Abstract

A total of 117 diabetic patients aged 20-65 years suffering from diabetes for at least one year were enrolled in this cross-sectional study. The study was conducted in Khulna Diabetic Center, a branch of Bangladesh Diabetic Association during the period from March 2012 to June 2012. The aim of the study is to assess the nutritional status of diabetic patients, which may contribute useful information for more comprehensive and intensive approach to diabetic patients care.

Majority (64%) of the respondents were normal (BMI 18.5-24.99) in nutritional status followed by overweight (31%, BMI > 25) and underweight (4.3%, BMI < 18.5). Middle age group appeared to suffer more from diabetes with no sex difference irrespective of age (males: 50.4%, females: 49.6%). Diabetic care seeking behaviour by rural people and females (housewives) appeared encouraging emphasizing the need of decentralization of diabetic care center to periphery. More retired persons (50%) and housewives (32%) showed obesity (40%) and no underweight with high family income might be explained as an association of more calorie intake and less physical activities.

Among the diabetic patients, retired persons and housewives appeared particularly vulnerable to become obese and on the other hand younger patients, poor education, lower income group and patients consuming low calorie were prone to develop under nutrition. So health education should be aimed to enhance awareness of particularly rural and illiterate people for regular visit to nearby diabetic center and to strictly adhere to dieticians' advice.

Introduction

Diabetes mellitus (DM) is a common metabolic disease characterized by hyperglycaemia resulting from defect in insulin secretion or insulin action or both. It is a major health problem worldwide. Diabetes is one of the leading causes of death in developed countries. IN USA it is the fourth leading cause of death[2]. The magnitude of diabetes in our country remains unknown due to lack of countrywide detection survey. However, small scale survey like that of West et al. (1960), Mahtul et al (1985) and Ali (1985) showed the prevalence rate (in>15 years) varying

from 1.0 to 1.5% in urban and 0.5 to 1.0% in rural areas & prevalence of IGT (Impaired glucose tolerance) in same age group vary from 5 to 6%. Another study revealed the prevalence of NIDDM & IGT to be 3.3% and 10.1% respectively[3]. The demographic & economic transition, ongoing currently in many developing countries, is producing important change in diet & life style that have great impact on disease risk. Among the high risk behaviors associated with socio-economic transition & Urbanization is excessive dietary fat intake, sedentary life style, smoking & environment at contamination[4]. Diabetes is managed by dietary control, exercise & where applicable by oral hypoglycemic agents and/or insulin, the only goal of such measure is to maintain blood glucose level normal & prevent complications. For better control of diabetes is one of the important factors. It increases insulin sensitivity & reduces cardiovascular risk namely blood pressure, blood lipid & obesity. To avoid the dreadful & irreversible complications patients want to control hyperglycemia strictly. With this motive some people are too much enthusiastic to improve their blood glucose level by restricting diet more. This practice sometimes leads to under-nutrition & ultimately productivity loss of. On the other hand many people are very much reluctant to consume the diet according to advice & become overweight that is undoubtedly harmful to diabetic patients. So Judicious diet & optimum nutrition should be optimum maintained on the basis of individual weight, height, age & sex, So the aim of this study is to assess the nutritional status of diabetic patients which may contribute useful information for more comprehensive and intensive approach to diabetic patient care.

Materials and methods

During the period from march 2012 to June 2012, one hundred & seventeen consecutive patients attending the Nawabganj diabetic center, a branch of diabetic association of Bangladesh (DAB) were enrolled in this cross-sectional study. The study population was aged 20-65 years suffering from diabetics for at least one year. After preliminary observation and literature review, a-structured interview schedule was developed which included information with regard to some interview has been taken from every respondent by asking questions in Bengali after verbal consent. Relevant technical information was collected by reviewing the diabetic record book. Anthropometrical measurements such as weight, height and mid-arm circumference by spring flat weight machine (Bath room scale) by measuring tape respectively. BMI was calculated for each from the weight and height values by the following formula-

BMI = (Weight in kg/height in meter^2)

Results

The study included 117 patients known to be diabetic from for at least one year. It was observed that among the respondents male and female were almost equal (50.43% vs. 49.57%). Most of the respondents (64.1%) were normal in nutritional status followed by pre-obese (30.8%), underweight9 *4.3%) and obese (0.9%) (Table-I.)

Table-1: Nutritional status of the respondents according to BMI

Nutritional status	Frequency	Percentage
Underweight (BMI<18.50)-	5	4.3%
Normal (BMI 18.50-24.99)	75	64.1%
Overweight	37	31.7&
Pre-obese	36	30.8%
Obese	1	0.9%
Total	117	100*

Table-II shows the nutritional status of respondents by mid arm circumference. Most (75.7%) of the respondents were in normal nutritional status. Table III. shows the nutritional status among respondents by age group. Two-thirds (64.1%) of the respondents had normal nutritional status. The rest were either overweight (31.6%) underweight (4.3%). Obesity was found to be associated with age. 23.3% of the respondents below 40 years were overweight and 10% were underweight. Table IV shows the highest prevalence (50%) of the overweight was found among retired persons followed by housewives (31.8%), cultivators (28.6%), service holders (28.1%), businessmen (25%) others (25%), Underweight was only found among the housewives (9.3%) Majorities (39.7%) of the respondents who have monthly family income above Taka 5,000/- were overweight compare to 23.7% among those with monthly family income at Taka 5,000/-. This difference is not statistically significant (p=0,06). Again 8.5% of the respondents who had monthly income at Taka 5,000/- were underweight (Table-V). Respondents suffering from diabetes for $\leq$5 years are more likely to be over weight than those who have diabetes for > 5 years. The difference was statistically significant (4.1% vs. 15.9%, p= 0.01) (Table-VI).

Table-1I: Nutritional status of respondents by mid-arm circumference.

Nutritional status	Frequency	Percentage
Under nutrition	5	4.3%
Normal	112	95.7%

Table-1II: Nutritional status of the respondents according to BMI

Age	Body mass index (BMI)			Total number
Underweigh t		Normal	Overweig ht	
<30	-	100%	-	2
30-39	10%	66.7%	23.3%	30
40-49	3.2 %	58.1%	38.7%	31
50-59	2.7 %	64.9%	32.4%	37
>60	-	64.7%	35.3%	17
Tota l	4.3 %	64.1%	31.6%	117

Table-1V: Nutritional status of respondents by occupation

Occupation	Underwei ght	Pre-obese & obese	Total
Housewives	9.3%	31.8%	54
Service-holders	-	28.1%	32
Businessmen	-	25%	8
Cultivators	-	28.6%	7
Retired person	-	50%	12
Other	-	25%	4

Table-V: Effects of monthly income on nutritional status

Monthly incom e (in taka)	No of the respondents	Under-weigh t	P Value	Over-weight	P val ue
≤ 5000	59	8.5%	P value	23.75 %	
			Not possi ble		0.0 6
> 5000	58	0%		39.7%	

Table-VI: Effects of duration of diabetes on nutritional status

Duration of Diabetes (in year)	Total no of respondents	Under-weight	P Value	Over-weight	P value
≤ 5 years	73	5.5 %		41.1 %	
			0.41		0.01
> 5 years	44	2.3 %		15.9 %	

Discussion

Diabetes mellitus is a major health problem in Bangladesh, which is a densely populated country[5], a well-managed diabetic Patients has a good life expectancy. The diet varies according to patient's weight[6]. A proper nutrition must be maintained to prevent either obesity or under nutrition. This present study showed that two-thirds (64.1%) of the respondents had normal nutritional status. The rest were either overweight (31.6%) of the diabetic Patients had normal nutritional status, 12.7% had weight below and housewives. Middle age group appeared to suffer more from diabetes (39% with no sex difference (males; 50.4% females; 49.6%, Diabetic care seeking by rural people and female appeared encouraging emphasizing the need of decentralization of diabetic care center to periphery. Retired persons (50%) and housewives (32%) are more likely to be obese compared to other occupation.

Female sex, lower educational status (up to SSC), younger age group (<40 years), low daily calorie intake (15oo Kcal) and low monthly family income group are associated with under nutrition. Housewives represented to have both extremes of nutritional status-under nutrition and over nutrition.

Therefore while giving diabetic dietary advice to the housewives special attention should be given to determine whom to emphasize on increasing calorie intake and whom to further restrict calorie intake. Retired persons were found more vulnerable to get obese and they should be given advice to be more careful about dietary intake and to increase exercise.

Conclusion

The present study tried to bridge the gap of information on the nutritional status of diabetic patients in a state of paucity of researches in this particular field. It is seen that female as well as rural diabetic patients availed services from remote center compared to center located in the big cities emphasizing the need of decentralization of diabetes care. Among the diabetic patients, retired persons and housewives appeared particularly vulnerable to become obese and on the other hand, younger age group, those with lower educational level, low calorie intake and lower monthly income were vulnerable to under nutrition.

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