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Dietary Habits and Exercise Behaviour of Type –2 Diabetics

Usha Malagi and Rama Naik

Department of Food Science and Nutrition, University of Agricultural Sciences, Dharwad 580 005, Karnataka, India

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ABSTRACT A study was conducted to know the dietary pattern and exercise behaviour of type–2 diabetics (n=50) using pretested schedule. More than half the diabetics had no family history of disorder. Most of the diabetics were on allopathic medicines (96%). The routine meal pattern was three meals and one snack, followed by three meals. The common foods restricted were those rich in sugar, fats and oils and fruits rich in sugar. Millets, cereal rotis and porridge, bitter gourd and vegetables were the special foods included for diabetes. Indigenous hypoglycemic foods such as fenu greek seeds, *Jamun* seeds, '*ekanayakam*' roots and bitter gourd juice were consumed. Smoking (14.29 %) and drinking alcohol (47.62 %) were the vices seen in male diabetics. Half the diabetics (53.57%) had initiated exercise less than a year back. Walking was the main form of exercise (92.86%) followed by swimming and y*ogasana* (7.69% each).

INTRODUCTION

Diabetes mellitus has emerged out as a world wide health problem affecting millions of people in both developing and developed countries. It now affects higher proportion of persons in many developing countries than it does in western countries. This trend is linked with moves from traditional to modern life style and changes in diet and physical activity.

Although dietary management is the corner stone of any treatment programme in diabetes, implementation of diet therapy is the biggest problem in diabetes. Howarth and Worsely (1991) have studied the dietary habits of elderly diabetics. Torangatti and Naik (2000) have investigated the dietary habits and exercise pattern of non insulin dependent diabetes subjects. Faulty diet regimes can make the best of medicine ineffective. So the present study was conducted to know the dietary habits and exercise behaviour of type 2 diabetics.

MATERIAL AND METHODS

An investigation was undertaken at the out patient department of diabetes clinic at Railway hospital Hubli, Karnataka. About 50 Type 2 diabetics above 50 years of age, who could spare their time for the interview were selected and interviewed by using pretested schedule. The schedule consisted of general information and questions on dietary habits, the vices present and the exercise behaviour of diabetics.

RESULTS AND DISCUSSION

Results of the general information of diabetics are presented in the table 1. The onset of diabetes was maximum between the ages of 50-60 years followed by the age group of 40-50. More than half (52%) the subjects had no family history of diabetes. The environmental factors play an important role in causation of diabetes. Increased calorie intake, sedentary life style, intake of refined carbohydrates and low fibre can result in obesity leading to diabetes. Most of the diabetics were on allopathic medicines (90%), out of this 60 per cent on sulphonyl urea and 16 per cent on biguanides and 14 per cent on combination of the two drugs.

Majority of diabetics were non vegetarians (60%) (Table 2). The routine meal pattern was three meals and one snack per day (52%) followed by three meals alone (34%) and two meals and a snack (12%). There is a need to counsel the diabetics to consume the meals regularly and not to skip the breakfast. Common foods restricted by diabetics were (Table 3) those rich in carbohydrates and fats and fleshy foods. More than half avoided sweets such as sugar, jaggery (54%) sweet fruits (10 %), cool drinks and tea. The observed modification of diet was due to the advice given by physician and the other diabetics. Similar results have been reported by Howarth and Worsley (1991), who reported awareness among 3000 diabetics of Australia. Majority of diabetics (72%) included one or more food for the management of diabetes (Table 4). Millets

Table 1: General information of diabetics regarding diabetes mellitus

Characteristics	*Subject*				*Total n=50*	
	Male n=21		*Female n=29*			
	Frequency	*%*	*Frequency*	*%*	*Frequency*	*%*
Duration (year)						
< 1	3	14.29	7	24.14	10	20
1 – 5	9	42.86	11	37.93	20	40
5 – 10	7	33.33	5	17.24	12	24
> 10	2	9.52	6	20.69	8	16
Age of Onset (Years)						
30 – 40	1	4.76	1	3.45	2	4
40 – 50	6	28.57	13	44.83	19	38
50 – 60	11	52.38	12	41.38	23	46
> 60	3	14.29	3	10.34	6	12
Family History of Diabetes						
Both parents	1	4.76	0.00	0.00	1	2
One parent	5	23.81	11	37.93	16	32
Blood related members	3	14.29	4	13.79	7	14
No family history	12	57.14	14	48.28	26	52
Medication						
No medication	2	19.52	-	-	2	4
Medication	19	90.48	29	100.00	48	96
Allopathic alone	18	85.71	27	93.10	45	90
Sulphonylurea	13	61.90	17	58.62	30	60
Biguanides	2	9.52	6	20.69	8	16
Combination	3	14.29	4	13.79	7	14
Ayurvedic & allopathy	1	4.76	1	3.45	2	4
Homeopathic	0	0	1	3.45	1	2

Table 2: Dietary pattern of diabetics

Dietary pattern	*Male n=21*		*Female n=29*		*Total n=50*	
	Frequency	*%*	*Frequency*	*%*	*Frequency*	*%*
Type of Meal						
Vegetarian	7	33.33	13	44.83	20	40
Non vegetarian	14	66.67	16	55.17	30	60
Meals per day						
Three meals	7	33.33	10	34.48	17	34
Three meals and snacks	9	42.86	17	58.62	26	52
Two meals	0	-	1	3.45	1	2
Two meals and snacks	5	23.81	1	3.45	6	12

were included in the form of dumpling and *ganji* (12%), Jowar *roti* and porridge (6% each), among the vegetables, bitter gourd found a prominent place in the form of juice and *bhaji* (18%) followed by increased consumption of vegetables (8%) and vegetable salads (4%). Similar awareness about the foods among diabetics is reported by Howarth and Worsley (1991). Torangatti and Naik (2000) have reported that 48 per cent diabetics included foods such as green leafy vegetables, bitter gourd and millets in diabetes management.

Indigenous hypoglycemic foods were used by 36 per cent of subjects (Table 5) for the control of diabetes. Fenu greek seeds either singly (18%) or in combination with other spices (6%) and bitter gourd juice (6%) were used for control of diabetes. Very few included *Jamun* seed powder and *ekanaykam* roots. Fenugreek seeds are known for its hypoglycemic activity (Raghuram et al., 1998) and hypoglycemic activity of bitter gourd and ekanayakam is proved (Upadhyaya et al., 1985 and Kowsalya et al., 1996).

The prevalent vices in diabetics (Table 6) were smoking (14.29%) and drinking alcohol (47.62%) in males. Tobacco chewing and snuff inhaling was seen in negligible subjects. In the present study majority of diabetics had no vices. similar observations (68%) have been made by Torangatti and Naik (2000). The vices, being absent in majority of diabetics in the present study may be due to the awareness regarding the bad effect of alcohol, cigarettes and tobacco.

Table 3: Foods restricted and avoided by diabetics

Foods restricted	*Frequency*	*%*	*Reasons given*
Foods Rich in Carbohydrates			
Sweets, sugar and jaggery	21	42	Raise the sugar level,Contain
Chocolates	2	4	sugar
Rice	26	52	
Potato	7	14	
Sweet potato	1	2	
Carrot	1	2	
Fleshy Foods			
Mutton	8	16	Contain fat and
Eggs	1	2	raise the weight
Fats			
Ghee	5	10	Cause heart
Butter	1	2	attack
Fruits			
Fruits in general	5	10	Contain more
Banana	6	12	sugar
Sapota	2	4	
Grapes	2	4	
Salt	2	4	
Foods Avoided			
Sugar, jaggery and sweets	27	54	Raise the blood sugar
Tea	2	4	
Potato	3	6	
Fruits in general	5	10	
Banana	2	4	
Sapota	1	2	

Table 4: Foods specially included for management of diabetes**

Foods included	*%*	*Quantity*
Inclusion of foods	72 (36)	
No inclusion	28 (14)	
Millets		
Ragi dumping and *ganji*	12 (6)	2 tsp. – 100g
Navne rice	2 (1)	40 – 50g
Jowar porridge	6 (3)	30 – 40g
Jowar roti	6 (3)	2 – 3 No.
Vegetables		
Increased quantity of vegetables	8 (4)	50 – 100g
Vegetable salads	4 (2)	50 – 75g
Bitter gourd juice and *bhaji*	18 (9)	1 No.
Ladies finger	6 (3)	4 No.
Knol khol	2 (1)	1* No.
Green leafy vegetables in general	6 (3)	50g
Fenugreek leaves	4 (2)	50 – 100g
Drumstick leaves	2 (1)	25*g
Fruits		
Citrus fruits	2 (1)	½ to 5 Nos. per week
Jamun	6 (3)	5 – 10*
Spices		
Fenugreek seeds	18 (9)	1 tsp.
Cumin seeds	2 (1)	1 Pinch
Milk	2 (1)	1 Cup

*Whenever available
**Figures in parenthesis indicate numbers

Table 5: Intake of indigenous hypoglycemic foods in habitual diet

Foods	*Subjects N=50*		*Duration of use*	*Quantity*
	Frequency	*%*		
Hypoglycemic foods	18	36		
Fenugreek seeds	9	18	1-2 months	1-2 t spoons
Fenugreek, cumin and *kalounji* mixture	3	6	6-8 months	½ t Spoon
Fenugreek, bitter gourd and *patri* mixture	1	2	12 months	½ t Spoon
Bitter gourd juice	3	6	6 months to 5 years	1 bitter gourd
Jamun seed powder	2	4	3 weeks	½ t Spoon
Eknayakam, (Salacia prenoides roots)	1	2	2 months	1 pinch
No hypoglycemic foods	32	64		

Table 6: Prevalent vices in diabetics

Vices	*Subjects N=50*					
	Males n=21		*Females n=29*		*Total*	
	Frequency	*%*	*Frequency*	*%*	*Frequency*	*%*
Vice present	15	71.42	1	3.45	16	32
Smoking	3	14.29	0	0	3	6
Tobacco chewing	1	4.76	1	3.45	2	4
Snuff inhaling	1	4.76	0	0	1	2
Alcohol consumption (Occasional)	10	47.62	0	0	10	20
None	6	28.58	28	96.55	34	68

Table 7: Exercise behaviour of diabetics

Characteristics	*Subjects N=50*					
	Males n=21		*Females n=29*		*Total*	
	Frequency	*%*	*Frequency*	*%*	*Frequency*	*%*
Regular Exercise						
Yes	13	61.90	15	51.72	28	56.00
No	8	38.10	14	48.28	22	44.00
Period of Initiation (years)						
<1	8	61.55	7	46.67	15	53.57
1 – 5	2	15.38	6	40.00	8	28.57
5 – 10	2	15.38	2	13.33	4	14.29
> 10	1	7.69	-	-	1	3.57
Frequency of Exercise						
Daily	11	84.62	13	86.68	24	85.71
Thrice a week	2	15.38	1	6.66	3	10.71
Once a week	-	-	1	6.66	1	3.58
Type of Exercise						
Walking	11	84.62	15	100.00	26	92.86
Swimming	1	7.69	-	-	1	3.57
Yogasana and walking	1	7.69	-	-	1	3.57
Time Spent on Exercise						
< 1 hour	5	38.46	11	73.33	16	57.14
1 – 2 hours	8	61.54	4	26.67	12	42.86

About 56 per cent of diabetics were regular exercisers (Table 7), higher percentage of men exercised compared to women (61.9 % men and 51.72 % women). Nearly half (53.57 %) had initiated exercise less than a year back. Walking every day was the main form of exercise (92.86 %) followed by swimming and *yogasana* (7.69 each). Anon (1996) has suggested walking as the most appropriate exercise for the diabetics. Benefits of yoga have been reported by Das (1998) on the diabetics. In the present study the awareness about exercise led to the positive exercise behaviour in the diabetics.

Thus, it can be concluded that more than half the diabetics had no family history of diabetes and most of them were on allopathic drugs. They were aware of the foods to be restricted hypoglycemic foods and the special foods beneficial for diabetes management. Most of them had no vices and half the subjects followed regular exercise mostly in the form of walking.

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