

A COMPARATIVE STUDY OF NUTRITIONAL STATUS OF DIABETIC AND NON-DIABETIC ELDERLY

Supriya*

ABSTRACT

Ageing is associated with a gradual reduction in reserve capacity of body. Diabetes mellitus is most common health problem among elderly in developing countries. It is associated decline in nutritional status of elderly diabetics. In this study, an attempt has been made to assess the nutritional status of elderly people with and without diabetes mellitus. The sample comprised of 30 elderly male each in diabetic and non diabetic groups (aged above 65 years). Background information was collected using self designed questionnaire. Twenty four hour dietary recall method was also used to collect information regarding nutrient intake. Diabetic elderly men present a grim picture with respect to their nutritional status compared to non-diabetic. A comparative study was performed for elderly with Diabetes mellitus where nutritional status is a key aspect. Older adults with diabetes mellitus appear to be at risk of nutritional impairment. Older patients with diabetes are more likely to have inadequate nutritional status which may lead to increased morbidity and mortality. Adequate nutrition and a well-balanced diet are of vital importance even during old age so as to prevent and control the common hazards of ageing. Many factors like poor income, decreased mobility, social isolation, lack of knowledge and awareness about diabetes are known to affect the health and nutritional status of elderly. So there is need to focus on the health and nutritional status of elderly before it becomes too late.

KEY WORDS: Diabetes mellitus, elderly, nutrition

* EX - M.Sc Home Science (Food Science & Nutrition) Student, Banasthali University, Rajasthan, Jaipur

INTRODUCTION

Elderly people defined as individuals >65 years of age, comprise a substantial and growing part of the population in developed countries. Age related physiological changes have a marked impact on body composition, including a decline in lean body mass and total body water in parallel with an increase in fat mass with elderly people (1). Diabetes mellitus is a silent chronic disorder characterized by elevated blood sugar level either due to defective insulin secretion or action or both. It is associated with altered metabolism of carbohydrate, fat and protein (2,3). Diabetes is a life- long and life altering illness with no proven cure and demands only management. Being a degenerative disorder it can affect many parts of body, organ and tissue and increase risk of morbidity and mortality from acute and chronic complications. The increase in the prevalence of diabetes is probably the result of changing life styles (4). Proper nutrition is essential to maintain good health in old age. Nutrition which is poor in quality as well as quantity can lead to mean loss of physical power. Deficiencies that occur in older person are either a result of reduced appetite and intake, impaired absorption or excessive utilization. Diet counseling may help the older persons to understand the nutritional concept. Nearly two third of India's population is on a nutritionally deficient diet (5).

METHODS AND MATERIALS

Total number of 60 subjects out of which 30 diabetics and 30 non diabetics were selected. Selection of subjects were done according to age i.e., 65 years of age and above. This study was carried out in the urban areas of Patna (Bihar). Selection of subjects was done using purposive non-random sampling technique. A pre-test structured proforma was used to collect the information by personal interview technique. General information included age, marital status, monthly income of subjects. The data have been represented in mean, SD and student t-test.

RESULT DISUSSION

Socio-economic information about the subjects has been presented in Table 1. The age of the subjects ranged between 65 to 90 years. Nearly half of the subjects in both diabetic and non diabetic groups fell in the age group of 70-79 years. Only 4 subjects were above 80 years of age including both the groups.

Table 1 shows Twenty three diabetic subjects and seventeen non diabetic subjects were graduate, whereas only four and six subjects were post graduate in the two groups of subjects respectively. Table 1 shows that most of the diabetic and non diabetic subjects were from middle income group and high income group.

Table no.1 General information of diabetic and non – diabetic subjects

	Diabetics		Non-diabetics		All subjects	
	n	%	n	%	n	%
Age (yrs)						
65-69	11	36	10	33	21	35
70-79	15	50	16	53	31	52
> 80	04	14	04	14	08	13
Total	30	100	30	100	60	100
Educational Status						
Matric or below	-	-	3	10	03	05
Higher secondary	03	10	04	13	07	11
Graduate	23	77	17	57	40	67
Post graduate	04	13	06	20	10	17
Total	30	100	30	100	60	100
Income (Rs/month)						
<15,000	03	10	04	14	07	12
15,000-25000	14	47	13	43	27	45
>25,000	13	43	13	43	26	43
Total	30	100	30	100	60	100

Table No. 2 Shows nutrient intake by the subjects

Energy (Kcal)

At 65 years or above, an individual is expected to consume a diet sufficient to provide 2088 kcal of energy daily (6,7). The mean energy consumption of diabetic subjects were (1896 ± 289.41kcal) and non-diabetic subjects were (1797.2 ± 204.66 kcal). In terms of percent

consumption of energy with respect to RDA, it was observed that diabetic consumes more energy than non diabetic counterparts (fig 1).

Carbohydrate (gm)

Above 65 years of age, an elderly men are expected to consume a diet sufficient to provide 313 gm of carbohydrate daily (6,7). The mean carbohydrate intake by diabetic subjects were (326.9 ± 64.36 gm) and by non-diabetic subjects were (303.42 ± 28.26 gm). In terms of percent consumption of carbohydrate with respect to RDA, it was observed that diabetic consumes more carbohydrate than non diabetic counterparts (fig 1).

Protein (gm)

Daily recommended consumption of protein for elderly is 73 gm (6,7). The protein intake by the diabetic subjects were (69.9 ± 13.62 gm) and by non-diabetic subjects were (63.1 ± 11.29 gm).

Fat (gm)

Daily recommendation of fat intake for elderly is 58 gm (6,7). The mean fat intake by diabetic subjects were (42.1 ± 7.70 gm) and by non-diabetic subjects were 40.9 ± 8.39 gm). More or less similar percent consumption of fat is observed in both diabetic and non diabetic groups (fig 1).

Iron (mg)

Above 65 years of age, an elderly men are expected to consume a diet sufficient to provide 17 mg of iron daily (6,7). The mean iron intake by diabetic subjects were (19.0 ± 2.73 mg) and by non-diabetic subjects were 17.0 ± 1.88 mg). The percent consumption of iron has been shown in fig 1.

Table no. 2 Energy and Nutrient intake of the subjects (Mean±SD)

Nutrients	Diabetes	Non diabetes	All subjects
Energy (kcal)	1896.8 ± 289.41	1797.2 ± 204.66	1847.0 ± 253.53
Carbohydrate (gm)	326.9 ± 64.36	303.42 ± 28.26	315.1 ± 50.69
Protein (gm)	69.9 ± 13.62	63.1 ± 11.29	66.5 ± 12.87
Fat (gm)	42.1 ± 7.70	40.9 ± 8.39	41.5 ± 8.01

Iron (mg)	19.0 ± 2.73	17.0 ± 1.88	18.0 ± 2.53
------------------	-------------	-------------	-------------

Mean percent consumption of energy and nutrient with respect to RDA

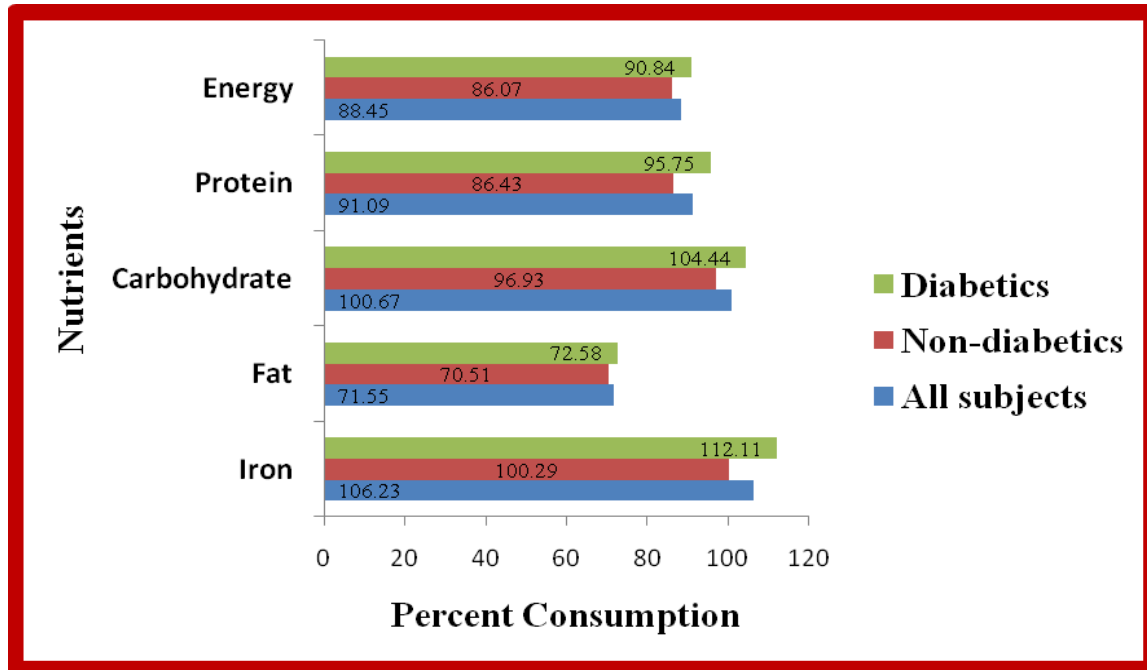


Table no. 3 Student's t-test significance values in diabetic and non diabetic subjects

Table 3 shows protein and iron intake was positive and at 5 percent level of significance.

Nutrients	p value
Protein	0.03 [*]
Iron	0.01 [*]

CONCLUSIONS

After having glance on present study it can be concluded that the prevalence and incidence of diabetes are increasing with advancing age and there is low nutrient intake due to which there is decline in nutritional status of elderly men with diabetes mellitus compared to non-diabetic counterparts. To this end, nutritional research gaps must be addressed without a delay.

REFERENCES

1. Kyrrou I. Obesity in the elderly diabetic patient. *Diabetes Care*. 2009;32:403-407.

2. Chan WM, Woo J, Hui E, Lau WW, Lai JC and Lee D. A Community model for care of elderly people with diabetes via telemedicine. *Applied Nursing Research*. 2005;18:77-81.
3. Raj K. Assessment of the nutritional status of the non insulin dependent male diabetes. *Journal of Human Ecology*. 2009;26(1):71-76.
4. Ramchandran A. Epidemiology of type II diabetes mellitus in Indians. *International Conference on Diabetes and Nutrition, International Life Science Institute*. New Delhi, 2000;89-96
5. Rajan S, Sharma PS and Mishra U. The rural elderly living the good life. *Helpage India Research and Development Journal*. 1999;6(2):19.
6. Gille D. Overview of the physiological changes and optimal diet in the golden age generation over 50. *European Review of Ageing and Physical Activity*. 2010;7:27-36.
7. ICMR. Nutrient Requirements and recommended dietary allowances for Indians. A Report of the Expert Group of the Indian Council of Medical Research. 2010, National Institute of Nutrition, Hyderabad, India.