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RESEARCH ARTICLE

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Nutrient intake of menopausal women suffering from osteoporosis

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ABSTRACT

Nutritional status of 60 menopausal women suffering from osteoporosis was studied. Respondents were selected from different Government and Private hospitals of Lucknow city and divided into three income groups – Group I (below Rs. 5000/-), Group II (Rs. 5000-10000/-) and Group III (above Rs. 10000/-). Maximum number (n=25) was from Group II, (n=20) from Group I and (n=15) from Group III. Demographic data, anthropometrical measurements, clinical findings-blood calcium and urine calcium were recorded. 24 hours dietary recall was done for calculation of nutrient intake and assessing the nutritional status. Respondents belonging to income Group I were taking minimum amount of calcium rich products. Results showed that maximum difference was observed in RDA value of energy, calcium (200 to 300mg/day) and phosphorus intake was maximum in Group I and minimum in Group III. Statistically it was proved to be significant (P<. 05). In all the three groups, the intake of remaining nutrients-protein, fat, carbohydrate (P<. 05) was comparable with ICMR standards. Complication of disease leads to loss of mobility and physical activity leading to loss of appetite and poor health.

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Key words : Menopausal women, Osteoporosis, Nutrient intake, Calcium, Nutritional status

INTRODUCTION

The first International Congress on menopause defined menopause as that phase in the aging process of women that marks the transition from the reproductive stage of life to the non-reproductive stage (Utian, 1983). The age at which menopause is reached varies with geographical, racial, nutritional and other factors. The age at menopause is around 49 to 50 years in most developed countries. Osteoporosis affects from 15 to 20 million people including 1 out of every 3 people over the age of 65. It is 8 times more prevalent in women than in men. In India, it varies from 44 to 50 years. In some women it sets in prematurely even before 40 years, or it may be delayed to 53 years (Singh and Wyon, 1983).

Oestrogens have a protective effect on the bones as they influence calcium absorption from the gut and reduce bone loss. With the fall in oestrogen levels after menopause, there is an increased loss of bone and calcium with diminished absorption of the calcium resulting in osteoporosis and increased risk of fracture of the distal radius, vertebrae and proximate femur (Unnikrishnan and Rajaratnam, 2000). Decalcified bones break more easily than normal ones and bone atrophy progresses more rapidly in women after menopause than in men (Widdowson, 1980). Estimates of the prevalence of osteoporosis range from 15 per cent to 50 per cent in India. The definition of osteoporosis at Consensus Conference stated that, it is a disease characterized by low bone mass micro-architectural deterioration of bone tissue leading to enhanced bone fragility and a consequent increase in fracture risk. Calcium is one of the paramount importance and its adequate intake throughout life is necessary to maintain good health and reduced hip fractures (Matkovic, 1979). Osteoporosis can be prevented in post-menopausal women by balanced diet rich in calcium, estrogen supplementation, vitamin D supplementation and regular exercise. An estrogen deficient woman has a higher calcium requirement and unless she raises her calcium intake after menopause she will continue to lose bone (Nordin, 1991).

The present study was carried out with an objective to assess the nutritional status of menopausal women.

MATERIALS AND METHODS

For the study, three stages sampling procedure was adopted *i.e.* Stage I selection of city: Lucknow city was purposively selected for the study. Stage II selection of hospital: Four different government and semi-government hospitals from different areas of Lucknow were purposively selected. Stage III selection of respondents: A sum of 100 respondents were interviewed individually. They were then grouped according to the income levels of their families *i.e.* group I (below Rs. 5000/-), group II (Rs. 5000/- to Rs. 10,000/-) and group III (above Rs. 10,000/-). Dietary survey method was adopted. Selected respondents were interviewed personally with the help of pre-tested schedule. 24 hours dietary recall method was adopted and nutrient intake per day was calculated. The food consumption frequency was recorded for various food groups.

RESULTS AND DISCUSSION

Table 1 shows different food habits of the respondents. The average percentage indicates that about 66.67% of the respondents were vegetarian, 25% non-vegetarian and about 8.33% were eggitarian. The highest percentage of vegetarians (75%) being in the group I. The highest per cent of non –vegetarian (28%) being in group II followed by group III (26.68%) and group I (20%). Thus, it can be concluded that females preferred vegetarian diet than non–vegetarian or eggitarian.

Table 2 shows that the maximum numbers of females from each group consumed three main meals and two snacks per day. 40% from I, 44% from group II and 66.7% from group III followed the above meal pattern. Out of total respondents, 20% preferred to take only two meals per day *i.e.* only breakfast and dinner.

Table 3 shows the nutrient intake by the female respondents in each of the three income groups. The data indicate that the dietary intake of nutrients (energy, protein, carbohydrate, fat, calcium and phosphorus) by all the three group respondents were below the daily allowances recommended by ICMR. Maximum negative difference can be seen in group I followed by group II and then group III. On applying student t-test, it was observed that there was significant difference in the dietary intake of energy,

Table 1: Food habits of the respondents

Food habits	Group I (n=20)		Group II (n=25)		Group III (n= 15)		Average (%)
	N	%	N	%	N	%	
Vegetarian	15	75	16	64	9	60.03	66.67
Non-vegetarian	4	20	7	28	4	26.68	25.00
Eggitarian	1	5	2	8	2	13.34	8.33

Table 2 : Consumption of different meals/day by the respondents of three groups

Dietary pattern	Group I (n=20)		Group II (n= 25)		Group III (n=15)	
	N	%	N	%	N	%
Breakfast + Dinner	5	25	5	20	2	13.34
Breakfast + Lunch + Dinner	7	35	8	32	2	13.34
Breakfast + Midmorning+ Lunch + Dinner	--	--	1	4	1	6.67
Morning tea + Breakfast + Lunch + Evening tea+ Dinner	8	40	11	44	10	66.7

Table 3 : Average nutrient intake by the respondents

Groups		Calorie (kcal)	Protein (g)	Carbohydrate (g)	Fat (g)	Calcium (mg)	Phosphorus (mg)
Group I	Observed value	722.19	24.17	119.80	12.06	214.75	519.11
	RDA	1875	50	281.25	20	1000	1000
	Difference	-1152.81	-25.83	-161.45	-7.94	-785.25	-480.89
Group II	Observed value	950.16	32.15	162.69	19.54	366.19	705.49
	RDA	1875	50	281.25	20	1000	1000
	Difference	-924.84	-17.85	-118.56	-0.46	-633.81	-294.51
Group III	Observed value	1179.20	40.13	147.05	35.63	506.83	806.52
	RDA	1875	50	281.25	20	1000	1000
	Difference	-695.80	-9.85	-134.2	+15.63	-493.17	-193.48

calcium and phosphorus due to income group. It was observed that calculated value of F due to income (3.668) is less than table value (6.94) at 2, 4 degree of freedom and 5% probability level thus there is no significant difference between the groups.

Conclusion:

Osteoporosis is asymptomatic disease but as disease becomes severe, patients complain various problems. Maximum (n=34) patients complained of loss of mobility, (n=27) complained of pain in climbing stairs, some (n=12) had severe backache and some of them complained of pain during bed time and were unable to do heavy work. It is concluded that nutritional status of menopausal women suffering from osteoporosis of Group I and Group II was poor and below standard whereas of Group III was comparable to the standard values. Thus, there is significant impact of income on nutrient intake. Milk and milk product consumption was also very less by the females. Thus, it is suggested that females should give more attention to their dietary calcium intake during early stages of life, early childhood, adolescence and reproductive age group.

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