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Assessment of macronutrient status among postmenopausal women of district Jalaun (U.P.) India

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Abstract

Menopause is the period of transition in the life of women during which several physiological changes occurs. This period not only marks the end of reproductive cycle of women but also makes them vulnerable to several chronic diseases such as cardiovascular disease, osteoporosis, diabetes, gastritis, asthma, liver disease etc. food and other lifestyle factors greatly affect the health status of postmenopausal women. This demands special care and attention to the women during this phase. The present study was carried out in Jalaun district of U.P. India with a sample size of 100 respondents with the aim to "assess the macronutrient status of postmenopausal women". Simple random sampling was employed for selection of sample only those women who have attained menopause were selected for the study. The data from respondents were collected by means of a structured questionnaire and mean nutrient intake of the respondents were recorded by employing 24 hour recall method. A significant association ($p < 0.05$) of physical activity pattern and BMI with menopausal age of the respondents were observed. Menopausal age was also found to be associated significantly ($p < 0.05$) with diabetes gastritis and bone disease. The result of assessment showed a poor dietary intake by the women. The mean Energy intake was found 2473.4 ± 1106.2 (kcal)/ day which 10.9 per cent higher than the RDA. The diet of the respondents were also increase in macronutrient mean protein 88.3 ± 37.1 g/d, fat 77.3 ± 55.2 g/d and carbohydrate 447.1 ± 319.7 g/d. however higher intake of all macronutrients study shows that the postmenopausal women of Jalaun districts.

Keywords: post-menopause, nutritional, food consumption, protein, fat, carbohydrate and energy

Introduction

Menopause is a natural part of a woman's life. It is a phase when she no longer experience menstruation, technically her body begins to produce less and less progesterone and estrogen and eventually her period cease. Menopause typically occurs in a woman's late 40's to early 50's. A "premature "menopause is one which occurs spontaneously before the age of 40 as a result of surgical removal. Irradiation or abnormalities of ovaries occurring in the fashion in 8 per cent women (Devi *et al* 2003).

India has a large population, with 43 million postmenopausal women and it is projected to be 103 million by 2026. The level of the hormone estrogen in the body falls which can cause symptoms such as weight gain, hot flushes, night sweats, irritability, mood swings, poor concentration, frequent headaches, joint pains or irregular periods.

Women of all age group are considered to be an important work force of the nation and their nutritional and health status is of paramount economic significance. The term 'women's health' has been constrained to their reproductive health in developing countries and many other dimensions of their health in later years have been overlooked for many decades (Gaur and Iyer, 2013)

Several physiological changes occur in women in the age group of 45-60 years because of beginning of natural phenomenon of menopause which is faced by each and every women during their life span. It has been found that the life expectancy of women has increased all over the world and they are expected to spend almost one third of their life in menopausal phase (R Geetha and Parida Priya, 2013)

The menopause is defined as ovarian failure due to loss of ovarian follicular function accompanied by estrogen deficiency resulting in permanent cessation of menstruation and loss of reproductive function. The World Health Organization (WHO) and the Stages of Reproductive Aging Workshop have defined menopause as the time of an increase in follicle-stimulating hormone and either increased variability in menstrual cycle length, two skipped menstrual cycles with 60 days or more of amenorrhea, or both. Once the ovarian

follicles cease to exist, the hormone estrogen is no longer produced in the large quantities needed to stimulate growth of the lining of the womb (endometrium) in preparation for fertilization. Thus, much smaller quantities of estrogen are produced and menstruation ceases. In 1990, there were an estimated 467 million women aged = 50 years in the world. This number is expected to increase to 1200 million by the year 2030. With menopause, an array of changes occurs gradually over a period of several years, involving changes in bleeding patterns, hot flashes, sleep disturbances, weight changes, vaginal discomforts, changes in sexuality, osteoporosis (or loss of bone mass), as well as changes in mood and cognition. Epidemiologic studies have shown that symptoms occur more commonly in parts of the world where Western dietary habits prevail, and clinical studies have found that dietary factors (fiber and perhaps fat) influence hormone concentrations and activity. Osteoporosis is a serious problem for postmenopausal women which increases the risk of bone fracture and worsens with age, increasing from 4% in 50-59 year age bracket to 50% in 80 years old women. Bone fractures are also prevalent in these women. Isoflavonoids are phytoestrogens present in soybeans concomitantly with soy protein, and they resemble estradiol in structure and manner of action. Isoflavones such as genistein and daidzein bind weakly to estrogen receptor alpha and more strongly to estrogen receptor Beta, and as this binding is tissue-specific, they possess organ-specific estrogenic and anti-estrogenic effects. Several studies have shown that women who consume large amounts of soy-based phytoestrogens have fewer menopausal complaints. High consumption of phytoestrogens in Asian countries has been suggested to account for the low risk of CVD, breast and endometrial cancers, and osteoporosis-related fractures in these countries.

Methods and Materials

A community based survey was carried out among postmenopausal women of district Jalaun to assess their

m micronutrient status. The study was conducted during the study period of 2019 to 2020 with a sample size of 100 respondents. Those women who were more than 40 years in age and those who had their last menstruation before one year were selected by employing simple random sampling. Information on socio economic factors like age, educational qualification, income, family types, occupation etc., activity pattern, menopausal age and medical history were collected with the help of a structured questionnaire.

The data concerning dietary intakes of the respondents were collected using 24 hour recall method. The respondents were asked to recall their dietary intake of the previous day. From the results of 24 hour recall method, mean daily nutrient intake was estimated using Indian food composition table. Calculation of macronutrients like energy, protein, fat and carbohydrate was done compared with RDA reference and difference to make the deficiency percentage.

The data collected using different tools were coded and tabulated to facilitate the effective interpretation of result. Data was analyzed statistically using the SPSS version 20 and MS Excel 2007. Frequency distribution, percentage, T test, standard deviation and correlation were applied to the data set wherever applicable. The level of significance was taken at $p < 0.05$ for the study.

Observation and Assessment

Nutrient intake:

The average daily nutrient intake by selected postmenopausal women and its per cent adequacy has been presented in Table 1. The average daily energy intake among postmenopausal women was 2473.4 ± 1106.2 kcal. The nutrient adequacy of energy calculated against RDA of ICMR (2010) was 10.9 per cent. The data revealed in the present study that the mean daily intake of protein was 88.3 ± 37.1 g. The results revealed that the mean intake of protein was much higher than RDA of 55g as per ICMR recommendation (2010) and adequacy was 60.5 per cent (Table 1).

Table 1: Average mean macronutrient intake of Postmenopausal women and compared to RDA by ICMR

S. No.	Nutrients intake	Observed value	RDA	% Increase/ Decrease
1.	Energy (kcal)	2473.4 ± 1106.2	2230	-10.9
2.	Protein (g)	88.3 ± 37.1	55	-60.5
3.	Fat (g)	77.3 ± 55.2	25	-209.2
4.	Carbohydrate (g)	447.1 ± 319.7	290	-54.2

The results of the present study revealed that the mean daily intake of fat was 77.3 ± 55.2 g respectively. It was observed that the intake of fat was much higher than recommendations 25g by ICMR (2010). The data revealed in the present study that the mean daily intake of protein was 88.3 ± 37.1 g. The results revealed that the mean intake of protein was much higher than RDA of 55g as per ICMR recommendation (2010) and adequacy was 60.5 per cent (Table 1).

Conclusion

The present study was restricted only to the postmenopausal women in district of Jalaun. Higher intake of macronutrients such as energy, protein, fat and carbohydrate was observed among the postmenopausal women due to excess of compared to intake of egg, nuts, soybeans, sugars, starch, fiber, poultry, fish and dairy products as recommendations given by ICMR. More stress should be laid on the intake of nutrients in early life which may prove useful in later years of life for overall physical and mental development.

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