ABSTRACT

Osteoporosis, one among the non communicable disease, is increasing at an alarming rate affecting the women more than the men. The objective of the study was to find out the prevalence of osteoporosis and the associated risk factors and to find out the impact of intervention on osteoporosis with reference to education, diet supplement and yoga. The investigation was carried out in Bengaluru city, Karnataka, India. The study was carried out in two parts, namely, Part-I Prevalence study and Part-II Intervention study. The subjects for the prevalence study were selected from the east zone of Bengaluru. The total number of subjects selected was 1144. The tools and techniques used for the prevalence study were questionnaire – to elicit the back ground information, reproductive history, medical history and lifestyle of the subjects. The prevalence of osteoporosis was found out with the help of Quantitative Ultra Sound to assess Bone Mineral Density (BMD). Height, weight and waist circumference were measured. The prevalence of osteopenia was 26% and osteoporosis 14% along with 60 % of normal among women. As the age increased the prevalence of osteoporosis also increased. The prevalence of osteopenia /osteoporosis (low BMD) was found to be high (73%) among women in the age group of 51-60 years compared with that of 41-50 years (27%). The assessment of risk factors related to low bone density revealed that age, educational status, menopause, duration of menopause, height (short) and exercise of women were significantly associated with low bone mineral density resulting in osteopenia or osteoporosis. Women who were diagnosed as osteopenia or osteoporosis from the prevalence study were selected for the confirmatory test with the Dual Energy X-ray Absorptiometry (DEXA). A total of 92 subjects were selected for the intervention study and were grouped into four groups (23 in each one). All the selected women were residing in C. V. Raman Nagar, (East zone). The three parameters selected for the intervention to manage osteoporosis were education, diet supplement and yoga. The groups were christened as ED, EDD, EDY and EDDY where the ED group received education, EDD group received education and diet supplement, EDY group received education and yoga and the EDDY group received education, diet supplement and yoga. The intervention was provided for a period of eight months. Education was given once a week for one hour to all the groups on nutrition and osteoporosis. Diet supplement with ragi, soya bean and skim milk powder enriched with calcium and vitamin D was given to the subjects (25 gms twice a day) in
aluminium sachets and asked to consume as porridge per day. Yoga was conducted thrice a week of duration 45 minutes. The parameters assessed before and after intervention to find out the impact of the osteoporosis management were: knowledge, diet - food and nutrient intake, physical performance, Body Mass Index (BMI), BMD (DEXA) at lumbar spine, femoral neck, ward’s triangle and fore arm, biochemical parameters - serum calcium, phosphorus, alkaline phosphatase and vitamin D$_3$ and quality of life. The impact of intervention showed significant ($P<0.05/0.01$) improvement of knowledge in all the groups, physical performance in the EDY and EDDY group. There was a significant improvement in the consumption of pulses, fruits and milk products and intake of calcium in EDD, EDY and EDDY group. The DEXA result showed a positive improvement in femoral neck of all the groups. In general, the BMD values of the observation were good in the ED group followed by EDY and EDD group. To conclude all the three intervention parameters had shown a positive effect on the BMD values which is the indicator of Bone health.