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Original Research Article

Knowledge, attitude, and practice assessment regarding osteoporosis among post-menopausal women attending an urban health centre in south India

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ABSTRACT

Background: This study aimed to assess the awareness of osteoporosis in postmenopausal women. Objective was to evaluate knowledge, attitude, and practices about osteoporosis and its correlation among postmenopausal women.
Methods: Cross-sectional study was carried out to assess the state of awareness in consecutive postmenopausal women using a validated questionnaire- osteoporosis knowledge assessment tool (OKAT).
Results: A total of 300 postmenopausal women were enrolled in this study. In spite of being aware of the consequences of osteoporosis, in most subjects there was a generalized lack of awareness concerning available treatment options and risk factors. We have observed about 40% of had poor awareness about osteoporosis.
Conclusions: This study showed an evident deficit in awareness of osteoporosis in postmenopausal women and there's a need to emphasize educating and aware, women regarding the consequences of osteoporosis.

Keywords: Dexa scan, OKAT, Osteoporosis, Postmenopausal women

INTRODUCTION

Osteoporosis affects bone, resulting in deterioration of bone micro-architecture and low bone density.[1] The reduction in bone strength is a function of reduced bone mass and abnormal bone quality, including the microscopic architecture of the bone, bone turnover, damage accumulation, and mineralization.[2] With advancing age, loss of bone density occurs and rates of fracture markedly increase.[3] Osteoporosis is three times more common in women than men partly because women have a lower peak bone mass and partly because of hormonal changes that occur at menopause.[4]

It is a serious public health problem. By 2025 osteoporosis alone will be responsible for 3 million deaths.[5] In India, the prevalence of this silently progressing metabolic bone disease is high, and the common cause of morbidity and mortality in adult Indian men and women is osteoporotic fractures.[6]

In India, 25 million people are estimated to be stricken.[5]

Osteoporosis has been defined by World Health Organization (WHO), as a disease characterized by low bone mass and micro-architectural deterioration of bone tissue, leading to enhanced bone fragility and a consequent increase in fracture risk. It is one of the most common metabolic diseases and it manifests itself only after sufficient damage has been done.[7]

The classification system of osteoporosis has been mainly based on measuring bone mineral density. Individuals whose bone mineral density score fell between 1-2 SD below the mean are classified as having low bone mass or osteopenia, a condition in which the bone loss is not too

severe to classify the individual as an osteoporosis patient.[8]

Despite emerging therapies to treat osteoporosis, prevention is still preferable for controlling the disease.[9] Concerning the plan for the prevention of osteoporosis, sufficient information about people's health beliefs and knowledge is necessary, and it is necessary to be well-acquainted with the individual's practice in case of prevention and also their socio-economic and cultural features to change the health behaviors related to modifiable risk factors of osteoporosis.[10,11]

There is a felt need for community-specific studies to decrease risk factors.[12] This study aimed to evaluate postmenopausal women's knowledge, attitude, and beliefs towards osteoporosis. Awareness of osteoporosis in India is low, as there has been quite a little effort to impart regarding the disease. Different small-scale surveys depict that awareness of osteoporosis in the urban population is about 10-15%.[13] Whilst a good understanding of the disease may not be sufficient to bring about changes in health-related behavior, knowledge is a prerequisite for the success of preventive efforts.

The study was carried using a previously validated questionnaire-based tool [osteoporosis knowledge assessment tool (OKAT)], to assess the awareness of osteoporosis among postmenopausal women, attending a teaching hospital in Southern India.[14]

METHODS

Study design

This cross-sectional study design is used to determine knowledge, attitude, and practice (KAP). The study was conducted from August 2018 to January 2019 in a tertiary care hospital in Vijayawada, and a total of 300 postmenopausal women were enrolled.

Sample size

A total of 300 postmenopausal women of age between ≥45 years, who attained natural menopause and are menopausal for at least 1 year were included and premature menopausal (ovarian failure), surgical menopausal women, menopausal women with osteoporosis are excluded from the study. Of the postmenopausal women involved in the study where 31% were non-osteoporotic and, 69% were osteoporotic.[15]

Anthropometric indices

Height and weight of subjects are assessed by standard techniques as follows: assessment of height in cm was measured using a wall-mounted stadiometer, with feet together, knees straight, heels against the wall, looking straight ahead, and without headgear and footwear.

Assessment of weight in kg was measured using a calibrated digital weighing scale, with the patient barefoot, in light clothing, with one foot on each side of the scale, facing forward, and arms by the side of the body.

Assessment of BMI

The weight in kilograms was divided by the square of the height measured in meters, as per the previous study, 2.6%, 18.4%, 75%, and 4% were obese, overweight, normal, and underweight.[15]

Assessment of osteoporosis awareness

Osteoporosis knowledge was assessed using The OKAT questionnaire; OKAT is a valid and reliable tool to assess knowledge about osteoporosis 14 and consists of 20 questions. The first 12 questions were regarding knowledge; questions 13-17 were to assess understanding of risk factors of osteoporosis and the last three questions assessed practice and perception of osteoporosis prevention. It was of multiple choices questions with each question having three options, "true," "false," and "I don't know." I don't know and unanswered questions were considered incorrect. Correct answers were awarded one point and wrong answers were awarded zero points.

RESULTS

A total of 300 consecutive postmenopausal women who were referred for DEXA participated in this study. The levels of osteoporosis awareness were studied as follows.

On average, 20% of the questions were correctly answered. The state of awareness in the study group was characterized as, poor- 40%, average- 40%, and good-20%. Beliefs and knowledge about osteoporosis were analysed in three separate domains i.e., basic knowledge, calcium sources and risk factors for osteoporosis, and perceptions about treatment from the information available in the OKAT questionnaire.

Basic knowledge regarding osteoporosis (questions 1-12)

On analysing the responses to these questions, it was seen that 57% (n=171) were aware that osteoporosis leads to an increased risk of bone fractures, and 52.3% understood the relation between poor bone strength, falls, and fractures. Although about 67% knew that a majority of women would be affected with osteoporosis by the age of 65 years, 66.3% (n=199) of the study subjects had a misinterpretation that osteoporosis was more common in men than in women. About 73.6% (n=221) were unaware that cigarette smoking could contribute to osteoporosis. A majority of participants (73.3%, n=220) were aware that the chances of developing osteoporosis were higher in the presence of positive family history.

Table 1: OKAT questionnaire.

Questions	Correct answer	No. of the correct answer (%)
1. Osteoporosis leads to an increased risk of bone fractures	True	171 (57)
2. Osteoporosis usually causes symptoms (e.g., pain) before fractures occur	False	26 (8.6)
3. Having a higher peak bone mass at the end of childhood gives no protection against the development of osteoporosis in later life	True	57 (19)
4. Osteoporosis is more common in men	False	101 (33.6)
5. Cigarette smoking can contribute to osteoporosis	True	79 (26.3)
6. White women are at the highest risk of fracture when compared with other races	True	45 (15)
7. A fall is just as important as low bone strength in causing fractures	True	157 (52.3)
8. By age 80 years, a majority of women have osteoporosis	True	201 (67)
9. From age 50 years, most women can expect at least one fracture before they die	True	103 (34.3)
10. Any type of physical activity is beneficial for osteoporosis	False	137 (45.6)
11. It is easy to tell whether I am at risk of osteoporosis by my clinical risk factors	True	130 (43.3)
12. Family history of osteoporosis strongly predisposes a person to osteoporosis	True	220 (73.3)
13. An adequate calcium intake can be achieved from two glasses of milk a day	True	198 (66)
14. Finger millet and broccoli are good sources of calcium for people who cannot take dairy products	True	136 (45.3)
15. Calcium supplements alone can prevent bone loss	False	90 (30)
16. Alcohol in moderation has little effect on osteoporosis	True	80 (26.6)
17. A high salt intake is a risk factor for osteoporosis	True	104 (34.6)
18. There is a small amount of bone loss in the 10 years following the onset of menopause	False	30 (10)
19. Hormone therapy prevents further bone loss at any age after menopause	True	105 (35)
20. There are no effective treatments for osteoporosis available in India	False	45 (15)

Calcium sources and risk factors for osteoporosis (questions 13-17)

Excessive alcohol and high salt intake as risk factors for osteoporosis were confirmed by 26.6% (n=80) and 34.6% (n=104), respectively. Although most women (66%, n=198) were aware that two glasses of milk yielded sufficient dietary calcium, only 45.3% (n=136) identified Finger millet as a good source of calcium, 30%, (n=90) believed that calcium supplements alone could prevent the development of osteoporosis.

Perceptions about treatment (questions 18-20)

A majority of the women (65%, n=195) were unaware of the fact that hormone replacement therapy could help in preventing the progression of osteoporosis. 85% (n=255) of women knew that effective treatments for osteoporosis existed in India.

DISCUSSION

The objective of the study was to assess the level of awareness of osteoporosis among postmenopausal women, especially for risk factors, treatment options, and consequences, the explanation for choosing postmenopausal women as study participants was that they are at the highest risk for osteoporosis and fragility fractures, and this warrants early and precautionary screening in this group.

Increased risk of osteoporosis and fragility fractures are associated with menopause and this emphasizes the need for timely screening of postmenopausal women and early initiation of treatment to prevent the occurrence of fractures, by educating and bringing awareness. In a related study of 100 postmenopausal women, there was a great deficit in knowledge regarding osteoporosis and its prevention.[16] In this study, good knowledge regarding osteoporosis was observed in 20% of the subjects. The deficiency of awareness regarding osteoporosis mandates corrective measures to be adopted to bridge this knowledge gap. The participants of our study had poor knowledge about the risk factors and the consequences of osteoporosis 85% were aware and 15% were unaware that effective treatments for osteoporosis existed in India. In a survey by Ungan and Tumer of Turkish women for assessing osteoporosis knowledge, it was found that more than 40% of the women were unaware of the risk factors, and were more than 65% were not aware that osteoporosis was directly responsible for disabling hip fractures.[17] Pande et al surveyed 73 female staff members of a teaching institute and found that 74% were aware that osteoporosis is characterized by fragile bones, but there was a general lack of awareness in all the areas assessed.[18] This depicts the significant gap in understanding the disabling consequences of

osteoporosis, its risk factors, and treatment. In a comparison of the participants stratified according to their educational status, no significant difference was observed between illiterate/primary-level educated and the rest of the participants regarding osteoporosis awareness.

It is certain that in the current system of education, the measure of importance given to osteoporosis and its consequences is probably suboptimal and so initiation of educational ventures that enhance awareness about osteoporosis and its treatment. In view of the suboptimal level of osteoporosis awareness in the Indian population, osteoporosis awareness campaigns should be conducted at regular intervals to improve the understanding of osteoporosis and this facilitates appropriate screening, early diagnosis, timely initiation of treatment, and thus aid in fracture prevention. The use of mass media including print, broadcast, and digital media to improve awareness will help in reaching out to a majority of the general public. Individuals at risk of osteoporotic fractures who attend hospitals for other conditions can be provided with information leaflets about osteoporosis and fall prevention. The results of this survey are obvious about the low level of awareness about osteoporosis in at-risk postmenopausal women. Primary care physicians have to emphasize designing appropriate health education strategies for individuals at increased risk of osteoporosis based on their level of literacy. The community should be adequately educated about the burden of osteoporosis and its complications, potential risk factors, and options for treatment in the management of the chronic disease; profound knowledge about the disease enhance patient compliance with treatment. As the study was conducted among postmenopausal women referred for DEXA scan from the outpatient department, the knowledge of osteoporosis among our study population is not representative of the community. Thus, this study was an attempt to identify the level of awareness among postmenopausal women and know the pharmacological management in general, and hence these results can be used as an alarming sign to implement further measures to improve awareness and attitude toward osteoporosis.

A study was carried out in postmenopausal women from the outpatient department, the knowledge of osteoporosis among our study population isn't representative of a community.

CONCLUSION

People should be aware of the burden of osteoporosis and its complications, potential risk factors, and treatment options. In controlling chronic disease, profound knowledge about the disease is associated with improved patient compliance with treatment. Considering the minimal level of osteoporosis awareness in the Indian population, awareness programs and prospective studies are in need to be in progress to acknowledge women about menopausal and postmenopausal health strategies. This will ease appropriate screening, early diagnosis, and timely initiation of treatment, and thus aid in fracture prevention.

Recommendations

Preferably, conducting a teaching session on osteoporosis, its risk factors, and treatment and assessing the questionnaire responses before and after an equivalent will help in determining the effect of education on their existing state of awareness.

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