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PREVALENCE OF OSTEOPOROSIS AND EXPLORE RELATED RISK FACTORS USING SIMPLE SCREENING TOOL IN ELDERLY

Community Physiotherapy

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ABSTRACT

Background: Majority of the population remains undiagnosed and unaware of the importance of early recognition and preventive treatment of osteoporosis. Particularly in developing countries like India, where most of the patients cannot afford expensive DEXA scans use of simple screening could be effective so the aim of study were to use simple screening tool for prevalence of osteoporosis in the elderly in the community and explore related risk factor **Method:** Elderly population using osteoporosis self-assessment tool for Asian (OSTA)scores of >−1, −4 < OSTA ≤ −1, or ≤−4 were assigned to the low-risk, moderate risk, or high-risk group, respectively and A broad questionnaire to identify osteoporosis risk by score sheet was designed to be self-administered. Patients were required to complete the risk score for osteoporosis **Result:** Total 54 elderly in community included in the study Overall prevalence of osteoporosis by OSTA is 55.5%. **Conclusion:** Simple tools are effective in selecting the cases for BMD measurement and expensive specialized investigations, By noting down the risk factors, we can screen out the elderly who require further evaluation and management.

KEYWORDS

osteoporosis, elderly, OSTA

INTRODUCTION

Aging is the gradual accumulation of changes with time that are associated with or responsible for the escalating susceptibility to disease and death which accompanies growing age. (1) Reduced levels of anabolic steroids and sex hormones cause a number of changes in bones, muscles, and body fat percentage (BFP) which is associated with aging. (2)As a result of the aging process, the bone deteriorates in composition, structure and function, which predisposes to osteoporosis(3) Bone loss is a "silent" process that affects millions of people worldwide but is frequently disregarded. Osteoporosis increases the risk of fragility fractures, which are associated with high rates of morbidity and mortality, particularly in the elderly.(4) Osteoporosis affects more than 200 million people worldwide, and the prevalence rises with advancing age. The impacted population is almost 70% of those over 80.(5)

According to several research from India, the reported prevalence of osteoporosis among women ranges from 8 to 62%.(6) This demonstrates how the prevalence varies greatly across India. Additionally, women are more at risk for osteoporosis than men, and older people are more at risk than young adults. (7)

Numerous risk factors, such as low peak bone mass, hormonal factors, the use of specific medications (such as glucocorticoids), cigarette smoking, low levels of physical activity, low calcium and vitamin D intake, race, small stature, and a personal or family history of fractures are linked to osteoporotic fractures.(8) Dietary factors have also been shown to have an impact on bone health generally, either favourably or unfavourably. Vitamins including vitamin C, vitamin B12, and carotenoids enhance bone health when consumed.(9)

The most accurate method for evaluating bone density has been with dual energy X-ray absorptiometry (DXA). DXA instruments are not portable, though, and some people cannot use them.(10) However, it is not worthwhile to suggest that everyone have an examination in order to screen patients at high risk of osteoporosis.

The osteoporosis risk index in Asian postmenopausal women is determined by OSTA (Osteoporosis Self-assessment Tool for Asia) utilising age and weight.(11) OSTA is considered an effective self-assessment tool for initial osteoporosis screening that could replace ultrasound bone densitometry.(12) thus This study aimed to investigate osteoporosis prevalence in the elderly (over 60-year-old) population using preliminary osteoporosis screening tools using OSTA and analyse associated risk factors.

Procedure

After an Approval from institutional ethical committee, study was undertaken for a period of 1 month. The study was conducted on 54 community dwelling elderly in community. These patients were selected from the groups who attended public awareness camps on osteoporosis, held at vilad ghat. The participants where enrolled on the based of inclusion: Elderly who are 60 years old and above, a willingness to participate in the study, and an ability to read and provide informed consent. As this project was a screen program, no specific exclusion criteria were set.

At these camps a broad questionnaire to identify risk of osteoporosis :a risk score sheet for osteoporosis were designed in Marathi language and to be self-administered, closed ended which divided into 3 domain (preventive, modifiable, non-modifiable) covered risk factors for risk screening of osteoporosis with the aid of components from published validated instruments. Maximum the score maximum will be risk for osteoporosis.

The subject must wear light clothing and not wear shoes in an upright position. An anthropometric scale is employed to weight the person (kg) and measure his/her height (cm). OSTA use age and body weight to assess the risk of osteoporosis. Risk calculation formula of OSTA is 0.2x[body weight (kg)–age (years)]. The risk categories in OSTA include low risk (values > -1), medium risk (values between -4 and -1), and high risk (values <-4).


जे टाळता येईल ते करणे(Preventive)

1. तुम्ही नियमित व्यायाम करता का?
हो ☐ (0) नाही ☐ (1)
2. तुम्ही सकाळच्या उन्हात बाहेर जाता का?
हो ☐ (0) नाही ☐ (1)
3. तुम्ही कॅल्शियम सप्लिमेंट घेता का?
हो ☐ (0) नाही ☐ (1)
4. तुम्ही धूम्रपान करता का?
हो ☐ (1) नाही ☐ (0)
5. तुम्ही मद्यपान करता का?
हो ☐ (1) नाही ☐ (0)
6. तुम्हाला दूध किंवा इतर दुग्धजन्य पदार्थ आवडत नाहीत का?
हो ☐ (1) नाही ☐ (0)
7. तुम्ही दररोज 1 किंवा अधिक कप कॉफी किंवा इतर उत्तेजक पदार्थ पिता का?
हो ☐ (1) नाही ☐ (0)

कारण आपण कदाचित नियंत्रित करू शकता(Modifiable)

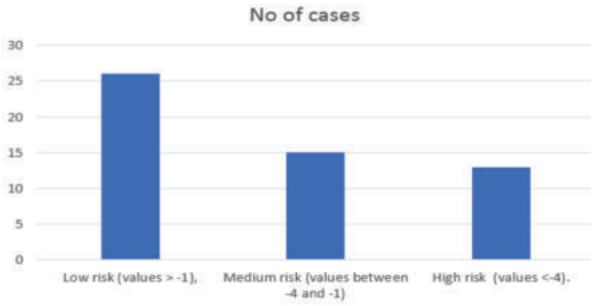
1. तुम्ही खूप दिवसांपासून स्टेरॉईड गोळी घेतली आहे का?
हो ☐ (1) नाही ☐ (0)
2. तुम्हाला संधिवात आहे का?
हो ☐ (1) नाही ☐ (0)
3. तुम्हाला मधुमेह आहे का?
हो ☐ (1) नाही ☐ (0)
4. तुम्हाला थायरॉईड आहे का?
हो ☐ (1) नाही ☐ (0)

टाळता येत नाही अशी कारणे(Non-Modifiable)

1. ऑस्टियोपोरोसिस हा आजार तुमच्या कुटुंबात अनुवंशिकरित्या आढळतो का?
हो ☐ (1) नाही ☐ (1)
2. तुमचे वय 40 पेक्षा जास्त आहे का?
हो ☐ (1) नाही ☐ (0)
3. तुमाला वयाच्या ४५ वर्षापूर्वी रजोनिवृत्ती झाली आहे का? (पुरुषांसाठी लागू नाही)
हो ☐ (1) नाही ☐ (0)
4. मासिक पाळीच्या वयात विलंब आहे का? (पुरुषांसाठी लागू नाही)
हो ☐ (1) नाही ☐ (1)
5. तुम्हाला पायाचे हिप्पर झाले आहे का?
हो ☐ (1) नाही ☐ (0)
6. तुमचे सहपालक, कमी वजनाचे पुरुष किंवा स्त्री आहात का?
हो ☐ (1) नाही ☐ (0)

RESULT

During data collection, a total of 54 participants were included in the study with mean age mean age 64.57±4.56 years which comprise 26 females (48.2%) and 28 males (51.8%), participated in the study. The prevalence of osteoporosis by OSTA is 55.5% in elderly population. OSTA score categorized in three categories namely low, medium and high risk which was shown in fig no 1



The risk scores were categorized in three categories namely, Low risk of fracture (1-5), moderate risk of Fracture (6-11) and high risk of fracture (risk score 12 and above) which was shows in tab.2

Risk score	No of cases	%from total score
Low risk of fracture (1-5)	23	42.59%
moderate risk of Fracture (6-11)	17	31.48%
high risk of fracture (risk score 12 and above)	14	25.9%

There was statistically significant correlation between risk scores and OSTA Score with Pearson correlation with P value 0.000. which indicates that, as the risk scores increase risk for osteoporosis increases.

DISCUSSION

With the increases in life expectancy and aging populations, the incidence of osteoporosis has been gradually increasing. DXA is used in the risk assessment of osteoporotic fracture and follow-up treatment of osteoporosis. However, DXA is not widely used because its domestic availability therefore it is important to use more effective, and feasible to use an osteoporosis screening tool to preliminarily screen a population at high risk for osteoporosis followed by selective DXA examinations.

There are various tools for screening of osteoporosis ,in Our study we used OSTA. The overall prevalence of osteoporosis among community elders is to be 55.5% by OSTA. OSTA was originally intended for postmenopausal women.[13] It has been suggested that cutoff should be adjusted for osteoporosis risk assessment in men while using OSTA.[14] OSTA is currently the only simple self-assessment method developed in Asia, using 2 risk factors, age and weight, to identify high-risk groups of osteoporosis. From India, reported prevalence of osteoporosis from various studies among women is 8 to 62%.(6) which is similar to our result which shows prevalence rate in women is 48.1% A tool for assessing risk from a credible study, given refers to a few risk factors for low femoral height (age, weight, race, oestrogen use, Rheumatoid arthritis and a history of fractures are present) and developed a quick measure known as the simple calculated osteoporosis risk estimation (SCORE). While we included additional risk factors to evaluate other high-risk factors.(15)

CONCLUSION

A simple tool OSTA and Risk score sheet for osteoporosis can be used to screen potential high-risk groups for osteoporosis in the community. Thus, community healthcare people can able screen high risk groups early and without invasive examinations in a hospital.

REFERENCES

1. Harman D. The aging process. Proc Natl Acad Sci U S A. 1981 Nov;78(11):7124–8.
2. Banitalebi E, Ghahfarrokhi MM, Dehghan M. Effect of 12-weeks elastic band resistance training on MyomiRs and osteoporosis markers in elderly women with Osteosarcopenic obesity: a randomized controlled trial. BMC Geriatr. 2021 Jul 20;21:433.
3. Demontiero O, Vidal C, Duque G. Aging and bone loss: new insights for the clinician. Ther Adv Musculoskelet Dis. 2012 Apr;4(2):61–76.
4. Babhulkar S, Seth S. Prevalence of osteoporosis in India: an observation of 31238 adults. International Journal of Research in Orthopaedics. 2021 Feb 23;7(2):362–8.
5. Porter JL, Varacallo M. Osteoporosis. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2022 Jul 11]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK441901/
6. Khadilkar AV, Mandlik RM. Epidemiology and treatment of osteoporosis in women: an Indian perspective. Int J Womens Health. 2015 Oct 19;7:841–50.
7. Kaushal N, Vohora D, Jalali RK, Jha S. Prevalence of osteoporosis and osteopenia in an apparently healthy Indian population - a cross-sectional retrospective study. Osteoporos Sarcopenia. 2018 Jun;4(2):53–60.
8. Epidemiology of osteoporosis - PubMed [Internet]. [cited 2022 Nov 29]. Available from: https://pubmed.ncbi.nlm.nih.gov/12473274/
9. Dietary approaches for bone health: lessons from the Framingham Osteoporosis Study [Internet]. [cited 2022 Nov 29]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4928581/
10. Bone Turnover Markers in the Diagnosis and Monitoring of Metabolic Bone Disease - PubMed [Internet]. [cited 2022 Nov 29]. Available from:https://pubmed.ncbi.nlm.nih.gov/27940448/
11. Koh LK, Sedrine WB, Torralba TP, Kung A, Fujiwara S, Chan SP, et al. A simple tool to identify asian women at increased risk of osteoporosis. Osteoporos Int. 2001; 12(8): 699–705.
12. Using a simple preliminary screening tool to explore related factors of osteoporosis in the elderly of southern Taiwan [Internet]. [cited 2022 Nov 29]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7939172/
13. Chen HY, Chang YF, Chang CS, et al. Associated factors and status of management of osteoporosis in elderly males in a rural community. Taiwan Geriatr Gerontol 2011;6:116–29.
14. Bhat KA, Kakaji M, Awasthi A, et al. Utility of osteoporosis selfassessment tool as a screening tool for predicting osteoporosis in Indian men. J Clin Densitom 2017;20:160–3