Knowledge of osteoporosis among the patients attending orthopedic outpatient department in tertiary care hospital of Nagpur

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Abstract

Osteoporosis is a systemic skeletal disease characterized by low bone mass and micro-architectural deterioration of bone tissue which results in consequent increase in bone fragility and susceptibility to fracture and more common in post-menopausal women and elderly people. Fractures in osteoporotic bones can be prevented by simple methods like early detection by certain investigative methods like DEXA and its treatment. A questionnaire was devised to assess knowledge of osteoporosis, its risk factors, risk reducing factors, complications and required treatment along with investigations. It was completed by 97 patients who attended the orthopedic outpatient department. Overall knowledge about osteoporosis was poor. 57.73% patients were aware about osteoporosis, 50.01% were aware about its preventive measures, regarding risk factors (for alcohol only 33.33% could identify it as a risk factors, similarly for smoking scored 29.62%, malnutrition had 16.66%, lack of exercise had 3.7%, gender scored 11.11% and drugs scored 5.55%). Merely 29.89% and 7.21% were aware about the complications and investigations respectively. Knowledge about osteoporosis amongst patients was found low. There is a need for public to be made more aware about osteoporosis and its causes. With the help of social media and national campaigns, people can be well educated about this disorder.

Keywords: Osteoporosis, Fracture, Post-menopausal, Systemic, Skeletal, DEXA.

Introduction

Healthy bones provide the body with a frame that allows for mobility and protection of important organs from the injury. Bones serve as a store house for minerals. Osteoporosis is a metabolic bone disease characterized by low bone mass and micro architectural deterioration of bone tissue, leading to enhanced bone fragility and increased fracture risk[1] according to WHO osteoporosis is defined as a bone density of 2.5 standard deviations below that of a young adult.

Osteoporotic fractures occurs every 3 seconds resulting in 8.9 million fractures annually all over the world, of which 61% of fractures occur in women.[2] It is estimated that by 2050, the worldwide incidence of hip fractures in men will increase by 310% and 240% in women.[3] In India expert groups say the numbers of osteoporosis in patients is approximately 36 million.[4] Various observational studies show poor knowledge of osteoporosis in general population.[5,6] According to these various studies, 1 in3 women over age 50 will experience osteoporotic fractures and 1 in 5 men aged over 50.[7,8,9]

Nearly 75% hip, spine fractures occurs among patients 65 years old or over, also 10% loss of bone mass in the vertebrae can double the risk of vertebral fractures.[10,11] Women who have fragility fractures are not appropriately diagnosed and treated, and many number of individuals are at high risk who are neither identified nor treated.[12,13,14]

Materials and Methods

The study was conducted in a tertiary care hospital of Nagpur. It was a Prospective questionnaire based cross sectional study. Study subjects consisted of all patients attending Orthopedic OPD above the age of 40 years and willing to give consent excluding those suffering from severe trauma who were unable to answer, those having psychiatric problems or who were unable to understand English, Hindi or Marathi or unwilling to give consent. Data was analyzed by statistical software, Epi Info. Version 3.4.3 using Chi-Square and Proportion; value less than 0.05 was considered significant.

The study was conducted in accordance with the tenets of the Helsinki declaration. The data was collected by face to face interview of the patients with the help of pre-designed questionnaire. Required data was collected by sitting in the orthopedics OPD every day, excluding Government holidays. An informed consent was taken from the study participants after explaining them the objectives of the study and ensuring the confidentiality of the data. The questionnaire was designed to capture age, religion, socio-economic status. The social class of the sample group was determined by modified BG Prasad's classification. Additional questions were included to find the knowledge, attitude and practices about Osteoporosis. The interview had taken approximately 10-15 minutes per participant.

The multiple choice questions covers the following areas of osteoporosis-General knowledge (2 questions), risk factor (7 questions), investigations (1),

complications (2 Questions) and treatment (3 questions).

The questionnaire had four possible answers. Every correct answer was plus one Point. Every wrong answer and option "do not know" had zero mark. To ensure the proper quality of response, the questions and their respective options were translated into three different languages that is English Hindi and Marathi. The educated people filled up the form without much help required and others filled the form with the help of data collector. Percentage of people who were aware and who were unaware about osteoporosis, its treatment and other relative factors were calculated by this method.

Results

A set of 15 questions were asked to the 97 cases individually. It was a questionnaire which covered the following sections: Awareness about osteoporosis, Risk factors for osteoporosis, Prevention, Complications of osteoporosis, Investigations done for osteoporosis.

Awareness about osteoporosis was calculated by asking questions regarding basic definition of osteoporosis, common age group involved etc. Risk factors included questions related to consumption of alcohol, smoking, drugs (corticosteroids), malnutrition, gender and lack of exercise. Other similar questions to find out the awareness about Preventive measures like exercise, proper balanced diet and healthy lifestyle, complications like osteoporotic fractures and weak bones and Investigations like DEXA were asked.

Table 1: Distribution of patients according to their gender (N=97)

Males	45
Females	52
Total	97

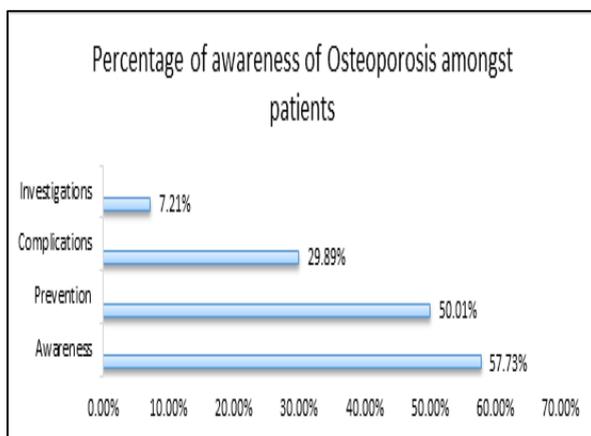Out of 97 cases, males were 45 (46.39%) and females were 52 (53.60%) (Table 1).

Fig. 1: Awareness about Osteoporosis among patients

About 57.73% were aware about osteoporosis, 50.01% knew about the preventive measures, 29.89% and 7.21% were aware about its complications and investigations required respectively (Fig. 1).

Percentage of awareness about risk factors was as follows: For alcohol it was 33.33%, smoking 29.62%, malnutrition had 16.66%, lack of exercise had 3.70%, gender and drugs had 11.11% and 5.55% respectively (Table 2).

Table 2: Awareness about risk factors of osteoporosis

Alcohol	33.33%
Smoking	29.62%
Malnutrition	16.66%
Lack of Exercise	3.70%
Gender	11.11%
Drugs(Corticosteroids)	5.55%

Section for prevention included proper diet and healthy lifestyle. Out of 97 cases, 50.01%(49 out of 97) gave the right answer for proper diet and healthy lifestyle. Sections for complications included fractures and weak bones. 29(29.89%) out of 97 gave the right answer. Section for investigations included DEXA. Only 7 (7.21%) out of 97 gave the right answer.

Discussion

In this study, we found that 57.73% patients were aware about osteoporosis and 50.01% patients were aware about broad outline of its prevention. But when it comes to percentage of awareness of risk factors of osteoporosis, it was found to be very poor. For alcohol it was 33.33%, smoking 29.62%, malnutrition 16.66%, lack of exercise had a score of 3.7%, gender 11.11% and drugs had 5.55%. Comparatively the percentage of osteoporosis and its prevention appears to be a little higher just because the questions asked regarding it were too simple in our questionnaire.

Again when it comes to complications and awareness of investigation like DEXA the knowledge was very poor. The score for complications was 29.89 and for investigation was 7.21%. Various other studies have also shown poor knowledge of osteoporosis among patients.

A study by Spencer in Scottish medical journal in 2007 shows osteoporosis risk factors as follows: Low calcium intake –42.6, Lack of exercise–21.00, Smoking–15.3, Menopause–14.2, Medication/ steroids –10.2, High alcohol intake–8, Advanced age–6.8. Regarding knowledge of risk reducing factors, study shows following data: Calcium supplements–65.9, Regular study–44.9, Healthy balanced diet–13.6, Hormone replacement therapy–13.6, Drugs–4.5. Osteoporosis is a significant health problem which is growing with growing age of the population. The key to prevention is to educate the general population by

making them aware about its risk factors, like menopause in women, advanced age in males, low calcium intake, lack of exercise, smoking, high alcohol intake, use of medications like steroids.

Similarly general population needs to be made aware about risk reducing factors like calcium supplements, regular exercise, healthy balanced diet and various drug therapies to reduce osteoporosis. Awareness about osteoporosis in general population regarding its causes or risk factors as well as risk reducing factors or treatment can be helpful to prevent its complications like osteoporotic fractures in post-menopausal women and elderly population.

Conclusions

Osteoporosis is a significant health problem worldwide. It remains undiagnosed many times till there is a osteoporotic fracture in postmenopausal women and elderly men. The study has shown that the knowledge of osteoporosis in general population is poor regarding its causes as a risk factors and preventive measures as treatment. In order to deal with this problem the general public needs to be educated and made aware about osteoporosis. Doctors and health professionals should discuss this issue with their patients and with general population, also on electronic media like television or radio as these are the sources of mass communication for the benefit of society at large.

References

1. Osteoporosis, Cleveland clinic, Mario Skugor, published: August 2010 Am J Med. 1994,90:646-650.
2. Johanell O and KanisJA (2006). An estimate of the worldwide prevalence and disability associated with osteoporotic fractures. Osteoporosis int 17:1726.
3. Gullberg B, Johanell O, Kanis JA (1997). World-wide projections for hip fractures. Osteoporosis int 7:407.
4. Osteoporosis society of India (2003). Action plan osteoporosis: consensus statement of an expert group. New Delhi.
5. Lack of knowledge of osteoporosis: a multi-center observational study by SJ Spencer, Scott Med J. 2007 Feb;52(1):13-6.
6. Knowledge about osteoporosis among healthy women attending a tertiary care hospital by M Riaz, J Pak Med Assoc. 2008 April;58(4):190-4.
7. Melton LJ, 3rd, Atkinson EJ, O'Connor MK, et al. (1998) Bone density and fracture risk in men. J Bone Miner Res 13:1915.
8. Melton LJ, 3rd, Chrischilles EA, Cooper C, et al. (1992) Perspective. How many women have osteoporosis? J Bone Miner Res 7:1005.
9. Kanis JA, Johnell O, Oden A, et al. (2000) Long-term risk of osteoporotic fracture in Malmo. Osteoporos Int 11:669.
10. Melton LJ, 3rd, Crowson CS, O'Fallon WM (1999) Fracture incidence in Olmsted County, Minnesota: comparison of urban with rural rates and changes in urban rates over time. Osteoporos Int 9:29.
11. Klotzbuecher CM, Ross PD, Landsman PB, et al. (2000) Patients with prior fractures have an increased risk of future fractures: a summary of the literature and statistical synthesis. J Bone Miner Res 15:721.
12. Freedman KB, Kaplan FS, Bilker WB, et al. (2000) Treatment of osteoporosis: are physicians missing an opportunity? J Bone Joint Surg Am 82-A:1063.
13. Siris ES, Miller PD, Barrett-Connor E, et al. (2001) Identification and fracture outcomes of undiagnosed low bone mineral density in postmenopausal women: results from the National Osteoporosis Risk Assessment. JAMA 286:2815.
14. Nguyen TV, Center JR, Eisman JA (2004) Osteoporosis: underrated, underdiagnosed and undertreated. Med J Aust 180:S18.