ORIGINAL ARTICLE

Knowledge of Fragility Fracture and its Management among Orthopaedic Surgeons and General Medical Practitioners

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Abstract

Background:*Fragility fractures are a variety of pathological fractures which occurs as result of normal routine activities like fall from a standing height or less. Therefore it is very important to identify risky patients and give them appropriate treatment. This study was done to evaluate the knowledge of the orthopaedic surgeons and general medical practitioners regarding this fragility fractures.* ***Materials & Methods:*** *Sixteen orthopaedic surgeons and 48 general medical practitioners were participated in the study. All the orthopaedicians submitted their responses, but out of 48 general practitioners only 45 had submitted their responses. The study was included of specially prepared questionnaires validated by doing pilot study. Their responses were collected, tabulated and analyzed with the help of IBM SPSS statistics version 20 using student's t test.****Results:****Comparison of the scores had shown that orthopaedic surgeons had much more knowledge of fragility fractures and the difference was found to be statistically highly significant.* ***Conclusion:****There is need to improve the scenario by enhancing the general practitioners participation in continuing education programs, symposiums or seminars on the various aspects of the fragility fractures.*

Keywords*: Fragility fracture, Orthopaedicians, Medical practitioners.*

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Introduction

Fragility fractures are fractures that result from mechanical forces that would not ordinarily result in fracture, known as low-level (or 'low energy') trauma. The World Health Organization (WHO) has quantified this as forces equivalent to a fall from a standing height or less. Reduced bone density is a major risk factor for fragility fracture. Other factors that may affect the risk of fragility fracture include the use of oral or systemic glucocorticoids, age, sex, previous fractures, and family history of osteoporosis. Because of increased bone loss after the menopause in women, and age-related bone loss in both women and men, the prevalence of osteoporosis increases markedly with age, from 2% at 50 years to more than 25% at 80 years in women. As the longevity of the population increases, so will the incidence of osteoporosis and fragility fracture.[1,2] The clinical relevance of osteoporosis is the resulting fractures that occur in the weakened bone – the so-called fragility fractures.[4]

Although many orthopaedic surgeons state that they should identify and initiate assessment of osteoporosis in patients with a fragile fracture, many do not institute medical management, and they also consider that the patient's primary care providers should be responsible for their medical care.[4,5] On the other hand, the orthopaedic surgeon is usually the first, and often the only, physician seen by the fracture patient. Therefore, it seems that orthopaedic surgeons have a unique opportunity and major responsibility in managing osteoporosis in a patient with a fragility fracture. However, it has been found that many orthopaedic surgeons still neglect to detect, assess and treat such patients for osteoporosis.[6]Therefore this particular study was done to assess the orthopaedic surgeons knowledge and attitude towards the fragility fractures and its management.

Materials and Methods

The study was included of specially prepared questionnaires validated by doing pilot study. The study was carried out on orthopaedic surgeons and the general medical practitioners. Approval from the local ethical committee was taken before start of the study and informed consent was also taken from all the participants. The general practitioners were included of MBBS, BAMS, BHMS doctors practicing in urban and nearby rural areas. The questions were based on the knowledge of the fragility fractures, its risk factors, features, complications, prevention and management. Total 10 questions were included in the study. The questionnaires were distributed to the participants by personal meeting and their responses were collected, tabulated and analyzed with the help of IBM SPSS statistics version 20 using student's t test.

Results

Sixteen orthopaedic surgeons and 48 general medical practitioners were participated in the study. All the orthopaedicians submitted their responses, but out of 48 general practitioners only 45 had submitted their responses. The responses were collected, arranged systemically and tabulated. Analysis of the scores had shown that orthopaedic surgeons had much more knowledge of fragility fractures and the difference was found to be statistically highly significant. (Student's t test, $p<0.001$) The study had shown that general medical practitioners had poor knowledge of the fragility fractures especially regarding the risk factors and the prevention of these fractures in susceptible individuals. This difference was particularly seen in general practitioners in rural area having ayurvedic of homeopathic bachelors degree.

Discussion

Osteoporosis is a progressive metabolic skeletal disease characterized by the porous bones due to which bone mass reduction occurs, bone strength is compromised increasing susceptibility to fractures and diminishing the health related quality of life.[7,8,9]GP awareness of osteoporosis among women is good but less so for osteoporosis among men. Bone health medications prescribed are consistent with current evidence but more specifics regarding nature and patterns of prescription are required.[10]

A history of fragility fracture after age 40 years is associated with a 1.5- to 9.5-fold increased risk of future fracture, depending on the patient's age and the number and site of prior fractures.[11]Despite the availability of these therapies, recent research has suggested that osteoporosis management following fragility fracture is inadequate.

Table 1: Comparison of the scores of the knowledge of fragility fractures among orthopaedicians and general practitioners.

Group	Participants (n)	Scores (Mean±SD)	T value	P value
OP	18	7.4± 1.5	5.30	P<0.001*
GP	45	4.530± 1.46		

OP=Orthopaedician, GP=General practitionaor

Due to devastating consequences of osteoporosis, it is no longer considered as only a public health concern, rather it has emerged as a socio-economic issue, as it demands a huge expense for diagnosis, treatment as well as management of its complications1.National Institute of Health defines osteoporosis as a skeletal disorder that manifests itself by effecting both strength and quality of bones leading to decrease in bone mineral density and increase vulnerability to fractures.[12] Urgent action to deal with this devastating chronic illness is necessary to prevent the dreaded complications of fractures.[13]

Regarding to the knowledge of symptoms associated with the osteoporosis the present study's general practitioner respondents did not know much about the apparent symptoms of osteoporosis. But majority of them correctly identified the fragility fractures and back pain as symptoms of osteoporosis. Short height or kyphosis was less recognized as a symptom associated with the disease. Similar results were presented by the other studies too. Where as moderate knowledge about symptoms was observed among Israeli nurses. There is no study conducted which assessed the knowledge about the disease's diagnosis even these studies have not included diagnosis related question in their questionnaires. As far as treatment is concerned two studies did asked their

respondents about the treatment one that was conducted in Pakistan and one conducted on Israeli nurses. Pakistani women did not know about the treatment of osteoporosis though they had an adequate knowledge regarding other dimensions of the disease osteoporosis.[8]

The management of fragility fractures requires substantial investment from healthcare services, including provision of emergency department (ED) resources and inpatient hospital admissions. The acute orthopaedic management of fragility fractures ensures that the fracture is adequately aligned and stable and may include surgical interventions. Ongoing recovery and rehabilitation may require a long period of time and care from multi-disciplinary teams. When older adults with fragility fractures are discharged from the hospital, they may develop complications directly related to the fracture management (e.g. surgical site infections). They may also experience complications associated with the fracture but also attributable, at least in part, to underlying comorbidities and low physical reserve (e.g. cardiovascular or respiratory complications). Frail older adults are at higher risk of adverse outcomes than younger adults who experience similar injurie.[14]

Osteoporosis is a silent condition. In most patients the condition is diagnosed on presentation of a low trauma fracture. Wrist or spinal fractures are presenting signs in younger postmenopausal women, while hip fractures are more common in older people. Generally the lower the bone mass, the lower the trauma necessary to incur a fracture.[9]

Although osteoporosis is defined in terms of BMD and micro architectural deterioration of bone tissue, BMD is just one component of fracture risk. Accurate assessment of fracture risk should ideally take into account other proven risk factors that add further information.[9]

Re-presentations to hospital following fragility fractures may pose a substantial burden for individuals, hospital institutions and society. For individuals, the outcomes associated with re-presentation to hospital may include reduced physical and psychological wellbeing, function, health-related quality of life and increased risk of mortality. For hospital institutions, higher re-presentation rates may be seen as indicators of poor hospital performance and influence financial reimbursements for clinical care. From a societal perspective, hospital re-presentations are a substantial economic burden due to the additional resources required for direct healthcare provision, as well as a reduced availability of healthcare resources for delivering care to other patients.[14]

To monitor changes in BMD over time and with treatment, the value for the spine is more useful. A DEXA report provides BMD values calculated as T scores and Z scores for the spine, femoral neck and total hip. In general the fracture risk doubles for each standard deviation fall in BMD, and a fracture is associated with an increased risk of a subsequent one.[9,14]

Clinical trials have demonstrated that medical treatment given to patients with fragility fractures can reduce the risk of future such injuries by up to 50%.[4]

Fragility fractures are fractures sustained from relatively minor forces (e.g. a fall from a standing height or less) and they are associated with increased risk of disability, hospitalization and mortality. Fracture-related mortality among older adults may or may not occur within close temporal proximity to the fracture event. Premature death may occur as the end point in sequelae of negative health events precipitated by a fragility fracture months or years earlier.[14]

Physical inactivity, a sedentary lifestyle and impaired neuromuscular function (such as reduced muscle strength, impaired gait and balance) are risk factors for fragility fractures. Smoking can lead to lower bone density and higher risk of fracture and this risk increases with age. High alcohol intake confers a significant risk of future fracture (for example, over four units of alcohol per day can double the risk of hip fracture).[9]

Prolonged use of corticosteroids is the most common cause of secondary osteoporosis. It is estimated that 30-50% of patients on long term corticosteroid therapy will experience fractures, with a two-fold increased risk of hip fracture in women and 2.6-fold in men.[9]

The incidence of osteoporosis and frailty-related fractures is expected to rise as the number of older adults in the population increases.[6,14]

This survey reflects the current status of orthopaedic surgeons' knowledge about osteoporosis management in patients with fragility fractures. It is important that patients with fragility fractures receive appropriate

medical treatment, not only for the presenting fracture, but also to prevent future fracture complications. Obviously, in this survey, the majority of orthopaedic surgeons questioned lacked sufficient training and knowledge in osteoporosis management. This is reflected, subjectively and objectively, by limited knowledge of osteoporosis assessment and treatment in most areas. To increase such knowledge, focused educational opportunities need to be established through articles, educational seminars and Web-based learning.

Conclusion

To increase the knowledge, focused educational opportunities need to be established through articles, educational seminars and Web-based learning. In addition, education about osteoporosis and related fractures must be appropriately integrated into the university curriculum and postgraduate training in many countries. It is, therefore, important to create local methods of facilitating effective medical treatment for secondary prevention of osteoporotic fractures.

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