

Diagnosis & treatment of osteoporosis: are we doing enough?

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Osteoporosis is a global public health problem affecting an estimated 200 million people worldwide [1]. Bone loss in osteoporosis is usually gradual and silent. Unless carefully sought, the disease may manifest itself with an acute event such as a fracture. It is leading cause of fractures of the hip, spine, and wrist in people above the age of 50 years. Approximately 1.6 million hip fractures occur worldwide each year and by 2050 this number could reach between 4.5 million and 6.3 million [2, 3, 4]. Hip fractures not only cause morbidity but also mortality with reported rates up to 24% in the first year after fracture [5, 6]. Greater risk of dying may persist for at least 5 years afterwards [7]. Loss of function and independence among survivors is profound, with 40% unable to walk independently and 60% requiring assistance a year later [8, 9]. Because of these disabilities, 33% are totally dependent or are in a nursing home in the year following a hip fracture [10]. In addition, a prior fracture is associated with an 86% increased risk of fracture in future [2, 11]. Financial burden to manage osteoporotic fractures on healthcare budgets around the world is huge. In USA alone, estimated cost of treating osteoporotic fractures in year 2008 was \$22 billion [12]. Significant proportion of people who sustain an osteoporotic fracture, was not diagnosed prior to their fracture and received no appropriate treatment [13]. Similarly a great majority, as high as 80%, of individuals who already had atleast one osteoporotic fracture, are neither identified nor treated for osteoporosis [14]. This is especially true among males. The reason for this dismal scenario is probably manifold. An International Osteoporosis Foundation (IOF) survey conducted in 11 countries identified that this may be largely due to lack of awareness among high risk individuals and physicians or due to limited access to diagnostic facilities. The situation is grim in Asia [15]. One of the main reasons is under-appreciation of the problem on the part of the contact clinician. Nearly all Asian countries fall far below the FAO/WHO recommendations for calcium intake of between 1000 and 1300 mg/day. The median dietary calcium intake for the adult Asian population is approximately 450 mg/day, with a potential detrimental impact on bone health in the region [15]. Studies carried out across different countries in South and South East Asia showed widespread prevalence of vitamin D deficiency/insufficiency in both sexes and all age groups of the population [16]. In a study among Indian women aged 30-60 years from low income groups, BMD at all the skeletal sites was much lower than values reported from developed countries, with a high prevalence of osteopenia (52%) and osteoporosis (29%) in both males and females and that too at a younger age [17]. In our

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own unpublished series, we did DEXA scan on all patients above the age of 50 years who presented with a fracture of proximal femur in orthopedic emergency. Patients with risk factor for osteoporosis i.e. sedentary lifestyle, smoking, excessive alcohol consumption, family history of fractures, loss of endogenous sex hormones, BMI<21 and chronic glucocorticoid use were excluded. 80% Patients had osteopenia (31%) or osteoporosis (49%). In a similar pilot study conducted on patients undergoing joint replacement at our institute, 22% (44/200) had either osteopenia or osteoporosis. The patients with known risk for osteoporosis were also excluded from this study. No worldwide data of incidence of fractures in people above the age of 50 years or total number of patients undergoing total joint replacement is available. However a study has shown that it can be as high as 53.2% among women and 20.7% among men [18] and more than 1 million people undergo total hip or total knee replacements annually in USA alone [19]. It indicates that number of people in whom the diagnosis of osteoporosis is being missed may be staggering. Second main reason, especially in developing countries, is lack of diagnostic facilities. In 2008, Indonesia had a total of only 34 DEXA machines, half of them in Jakarta, for a

population of 237 million (0.001 per 10,000 populations) [15]. Likewise in most of the countries including many European countries, this falls far below the recommended number of 0.11 per 10,000 populations [20]. The third and probably the most important reason is absence of region specific guidelines for preemptive evaluation for osteoporosis. Treatment of osteoporosis has been shown to increase bone-mineral density (BMD) leading to decrease in the incidence of future fracture by almost 50% as compared to untreated patients [21, 22, 23]. Studies have also established that in patients undergoing lower limb arthroplasty, use of bisphosphonates was associated with an almost twofold increase in implant survival time [24]. While primary fracture prevention is the goal, secondary prevention is also critical to prevent the future costs to the patient and society.

To conclude, primary care physicians and other specialists who come in contact with patients who are at high risk of developing osteoporosis should work diligently to participate in prevention and treatment of osteoporosis and fragility fracture care. The morbidity, mortality and resulting cost of managing fragility fractures can at least be decreased if not fully avoided if timely diagnosis and intervention is carried out. It is recommended that region specific fresh guidelines be formulated so as to evaluate all potential patients for osteoporosis. Evaluation, of all trauma patients (>50years) and patients undergoing joint replacement, for osteoporosis is a golden opportunity and should not be missed. Orthopedic surgeons should own the bone and take the lead. It should be emphasized that it is never too late to diagnose and treat established osteoporosis at any opportunity.

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