EDITORIAL

Bone health in Pakistan - current status and future directions

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Bones are dynamic and ever changing over the course of a life time. Peak bone mass representing the maximum bone mineral content achieved during an individuals' lifetime is influenced by a variety of hereditary (70-80 %) and lifestyle (20-30%) factors.[1] World-over with increasing life expectancy, the prevalence of osteoporosis is rising. Osteoporosis is a silent killer and is a globally under-recognized public health problem. An estimated 200 million people live with osteoporosis. It is projected that osteoporotic hip fractures will increase by 240% in women and 320% in men by 2050; translating to 1 in 3 women and 1 in 5 men over the age of 50.[2] Limited data in Pakistan suggests a high prevalence ranging from 5.6 to 17.8% in pre-menopausal and 20–49.3% in postmenopausal females.[3]

Most patients with osteoporosis experience no symptoms until they develop a fracture as a result of minimal trauma or normal stress. Most common sites of osteoporotic fracture are hip, vertebrae and wrist.[4] These fractures carry significant mortality and morbidity; hip fractures lead to 30 to 44% excess mortality in 1 year while 50% of survivors are permanently incapacitated. Similarly vertebral fractures can lead to physical deformities; resulting in reduced pulmonary function and diminished quality of life.

In a country with limited resources and socioeconomic constraints, the heavy economic cost of management of osteoporotic fractures is restrictive. Interestingly, Mehmood et al. found that although Pakistani women hailing from higher socioeconomic status had better understanding of osteoporosis compared to those of lower socioeconomic status, regardless of age; the authors concluded that improved knowledge did not translate into preventative habits or life style modifications for reducing fracture risk.[5]

Osteoporosis primarily results from normal aging or secondary to underlying definable mechanisms. Recognition of osteoporosis has to be a multi-disciplinary process where most medical specialists must be made aware of the burden of this silent disease. The most critical time in a female's life is the perimenopausal transition with the greatest degree of bone loss. Causes of secondary osteoporosis include endocrinopathies, gastrointestinal, haematological disorders and autoimmune disorders, renal diseases and several routinely used medications.[6] National medical societies must hold awareness sessions in collaboration with specialists involved in diagnostics (nuclear physicians), treatment (endocrinologists, family medicine) and management of resulting fractures (orthopaedics) taking the lead. It is important to target learning activities to specialists who are the point of contact for high risk populations. The National Osteoporotic Foundation (NOF) and International Society of Clinical Densitometry (ISCD) suggest Bone Mineral Density (BMD) testing in all females over the age of 65 years, females in the menopausal transition and males over the age of 70 years who have an elevated risk of fracture due to low BMD, high risk medication use and disease associated with increased bone loss.[2,7]

The gold standard for evaluating BMD is Dual Energy X-Ray Absorptiometry (DXA) scan. DXA is an easy, inexpensive and accurate test. In addition to its documented role in the diagnosis of osteoporosis, it can also detect low bone density (osteopenia) before osteoporosis develops. It has a proven ability to predict the risk of future fracture; with each standard deviation decrease in BMD there is nearly two fold increase in fracture risk. In addition, BMD value is included in the FRAX tool used for assessment of 10-year major osteoporotic fracture and under appropriate circumstances, it can be used to monitor response to treatment.[6,7]

Two types of equipment are used for assessment of BMD; central and peripheral. Peripheral devices are smaller and portable, making screening easier. If needed, referral is then made for central DXA scanning. BMD of total hip by central DXA is most precise, reproducible and correlates well with fracture risk. Measurements at lumbar spine are reproducible, but prone to artifacts. Spinal BMD can be used to monitor treatment response.[8]

Khan et al, in 2018 recommended osteoporosis screening with DXA scanning along with the addition of osteoporosis in the national action plan. They suggested food fortification and promotion of life style modifications through awareness campaigns for the masses as well as for health care professionals. In order to prevent osteoporosis multiple steps can be taken, including but not limited to

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increased physical activity, smoking cessation, calcium and Vitamin D rich diet, medications, muscle strengthening exercises and fall prevention in the elderly.[3,9]

In summary, a multi-facetted approach is needed to assess and then manage the burden of osteoporosis. Unfortunately no unified fracture registry exists across the country to document the prevalence or incidence of osteoporosis related fracture. The need of the hour is awareness and education to reduce the end point of osteoporosis; fracture and its associated morbidities.

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