

## Osteoporosis in women and its treatment: The Kashmir perspective

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### Abstract

The Number of ladies with osteoporosis, i.e., with lessened bone mass and the interruption of bone engineering, is expanding in Kashmir. While information on predominance of osteoporosis among ladies in Kashmir originate from considers directed in little gatherings spread over the nation over. In this manner, osteoporosis is a noteworthy open medical issue in Kashmiri ladies. Low calcium admissions with broad predominance of vitamin D lack, increasing longevity, sex inequality, early menopause, hereditary inclination, absence of analytic offices, and poor information of bone wellbeing have contributed toward the high predominance of osteoporosis. Bone wellbeing might be advanced by making a domain to accomplish top bone mass amid pre-adulthood, support of solid bone for the duration of the life cycle, and avoidance of bone misfortune postmenopausal. In Kashmiri ladies, calcium, vitamin D, and bisphosphonates are the commonest first-line treatments utilized. The utilization of different medications, for example, hormone substitution treatment, estrogen agonists, calcitonin, parathyroid hormone, is chosen according to the REASONABLE and accessibility of treatment choices. Significant holes still stay in the analysis and administration of osteoporosis, in this manner featuring the requirement for additional organized research around there. This survey concentrates on the study of disease transmission of osteoporosis in Kashmiri ladies and accessible medicines.

**Keywords:** osteoporosis, Kashmiri viewpoint, the study of disease transmission, treatment

### Introduction

Osteoporosis means porous bone (Osteo =bone, Porosis =porous) is a medical disease in which bones become weak and fragile. Most common site of Osteoporosis is joints especially knee and shoulder joint. People with osteoporosis have a high risk of bone fractures even from easy falls. Elderly people are more prone to it, In fact, osteoporosis is directly proportional to age, and means more age more chances of osteoporosis. Women are always at greater risk of it as compared to men because of hormonal/menstrual changes. People with osteoporosis need special care and treatment. Onset of osteoporosis can be delayed/prevented, if proper food chart (balanced diet) is followed. Calcium and minerals play an important role in bone health so enough intake of these substances can be beneficial for osteoporotic prone patients. Although it is believed, that osteoporosis affects only elderly patients but studies have shown that young people can also be the victim of this silent disease.

Constant low admissions of calcium have been reported in toddlers, young people, pregnant and lactating moms, and postmenopausal Kashmiri women.<sup>4– 9</sup> Given the need to build up peak bone mass during pubertal years and the expanded calcium necessities amid pregnancy time, lactation, and postmenopausal years, the circumstance is basic for Kashmiri women.<sup>10,11</sup> milk and milk items are costly, and the amounts purchased by the lower financial classes are likely to be meager.<sup>12,13</sup> Further, the unequal distribution of milk and milk products, with boys and men being served in large portion, is another factor that the situation.<sup>14</sup> The distinctions in calcium entry between genders are starker in the lower financial classes. Kashmiri eating regimens are

prevalently veggie lover, and the commitment of dairy items to the general calcium admission is negligible in the lower financial classes.<sup>15</sup> Phytates and oxalates in the fiber-rich Kashmiri eating regimen additionally impede the absorption of calcium.<sup>16</sup> Government supplementation programs give pregnant and lactating moms with 500 mg/d of calcium through a serving of 165 g of micronutrient invigorated sustenance every day; be that as it may, there are no national projects for supplementation for or advancement of bone health.<sup>17</sup> Despite the fact that Kashmir is a sun-rich nation, lack of vitamin D has been accounted for at all age gatherings. Shirking of daylight introduction because of sociocultural reasons, poor admissions of dietary calcium, in Kashmir's are the reasons behind hypovitaminosis D.<sup>18</sup> Sleek fish also, other vitamin D-containing nourishments frame a little part of the Kashmiri eating routine. Together with the nonappearance of fortification of nourishment items with vitamin D (aside from oils that have 5– 15 µg/100 g of oil), just ~1% of vitamin D is inferred from dietary sources.<sup>11</sup> The best quality level for the analysis of osteoporosis is by double vitality X-beam absorptiometry (DXA). Information propose that there are ~0.26 DXA machines per million of the Kashmiri population. Not very many of these machines are found in government doctor's facilities; along these lines, there is constrained access to DXA scanners.<sup>19</sup> This has prompted a disarray among the clinicians with respect to the conclusion and, subsequently, the treatment of osteoporosis. A Metacentric study using Hologic machines conducted by the Indian council of medical research for generating references curves for bone density (BMD) about bone health.<sup>21</sup>

Hence, low calcium admissions with broad predominance of

vitamin D inadequacy, poor information about osteoporosis, furthermore, challenges in the finding of osteoporosis in Kashmiri conditions are a portion of the reasons that have brought about osteoporosis turning into a noteworthy general medical issue in Kashmir, particularly among the Kashmiri ladies.

Subsequently, this story, nonsystematic survey means to concentrate on the study of disease of osteoporosis in Kashmiri ladies furthermore, accessible medicines. The medicines which can cure the disease very well and its common cause. Studies selected including those that reported prevalence of osteoporosis, current osteoporosis treatment, and fracture risk with special reference to Kashmiri women. Urbanization has brought about an inactive way of life. Diminished sun presentation, and lesser physical movement, which are hindering to bone health. Physical work out, particularly weight-bearing activity, serves to enhance and keep up muscle and bone quality and likewise enhances body balance. Absence of activity has been observed to be altogether connected with lower BMD in Kashmiri women. Cigarette smoking, while at the same time being a noteworthy hazard factor for osteoporosis, has been observed to be too low among Kashmiri women to significantly expand their danger of osteoporosis.

In a study conducted by the Department of Endocrinology SKIMS, 83 per cent of the subjects studied had vitamin D deficiency. Even though osteoporosis is called a silent killer, it can be prevented or minimized by taking precautionary measures and with intake of calcium + mineral rich diet and by early diagnosis. In modern day medical science, there are so many effective ways of early diagnosis of osteoporosis. DEXA (bone marrow density test, (BMD)). In this simple and non-invasive test, early bone pathology can be seen thereby assessing bone damage or risk of bone fracture.

As talked about before, with the expansion in future of Kashmiris, a disturbing ascent has been noted among ladies being determined to have clinical osteoporosis. vertebra, are the most widely recognized and soonest appearances of osteoporosis.<sup>24</sup> Breaks are additionally a critical reason for dismalness and mortality in Kashmiri osteoporotic patients and have been accounted to happen significantly prior in Kashmir's looked at to individuals in the Wes While information on pervasiveness of osteoporosis among ladies in Kashmir originate from thinks about directed in little gatherings spread over the nation.<sup>25</sup> Nonetheless, information on predominance of osteoporotic breaks, much like the information on predominance of osteoporosis, are a result of studies did in different little gatherings of individuals the n

### **Hazard factors and foundations for osteoporosis in Kashmiri ladies**

Different variables are associated with the etiology of osteoporosis among Kashmiri ladies. The no modifiable variables incorporate sex, propelling age, ethnicity, and hereditary elements. Ladies have a littler body outline estimate, will probably have lower segments of calcium-rich sustenance's and for socio-economic reasons are probably going to have poor daylight presentation. Further, estrogen being imperative for the arrangement and development of bone in ladies, diminished times of presentation to estrogen

amid a lady's lifetime may contribute significantly to the advancement of osteoporosis.<sup>27</sup> However the normal age at menarche in Kashmiri young ladies is ~12.5 years, age at menopause is frequently sooner than that found in Caucasian women.<sup>28,29</sup> This has been accounted for to be a huge hazard factor for the treatment of osteoporosis in Kashmiri<sup>34,35</sup> women.<sup>30,31</sup> Various investigations have detailed expanding commonness of osteoporosis with propelling age, and this pattern had been seen to an extraordinary degree among Kashmiri ladies than men.<sup>31–33</sup> Hereditary components, race, and ethnicity likewise have an extremely solid impact on crest bone mass. Association between vitamin D receptor quality polymorphisms and estrogen receptor alpha quality polymorphisms with BMD in postmenopausal ladies have been shown in a few studies.<sup>36–39</sup> The modifiable hazard variables of osteoporosis include:

### **1. Dietary Components**

Calcium and vitamin D, the two fundamental supplements associated with bone wellbeing, assume a noteworthy part in affecting the danger of osteoporosis.

**a) Calcium:** calcium as hydroxyapatite crystals is saved in the bone grid and is mindful for the hardness of bone. Calcium is acquired from the eating regimen through dairy and in addition nondairy sources. The bioavailability of calcium from dairy sources is significantly higher than nondairy sources. A few examinations have announced that Kashmiri weight control plans don't meet the needs of dietary remittances of 600 mg/d of calcium for grown-up ladies, which has been prescribed by the Kashmiri Board of Medicinal Research.<sup>11</sup> One of the purposes behind this is the poor utilization of dairy items. As indicated by the reports by Harinarayan et al Kashmiri weight control plans have a higher proportion of phytates to calcium, particularly among provincial Kashmiris.<sup>40</sup> Phytates may block calcium ingestion from the as of now calcium-inadequate eating methodologies. Hence, bone renovating may be impeded, bringing about lower BMD, expanding the danger of osteoporosis.

### **Vitamin D**

Vitamin D is integrated in the human skin upon presentation to daylight. In spite of the fact that Kashmir has bottomless daylight, a few reports express that Kashmir's experience the ill effects of vitamin D deficiency.<sup>5,18,40–44</sup> A portion of the explanations behind vitamin D inadequacy among Kashmir's may be low sun introduction, customary apparel (saris, salwar kameezes), lacking dietary admission, poor vitamin D stronghold of sustenance, and very pigmented skin.<sup>19</sup> Vitamin D lack brings about ineffectual calcium assimilation from the gut, which thusly influences the mineralization of bones. Vupputuri et al in 2006 announced that in urban Asian Kashmir's, "practically huge insufficiency of vitamin D influencing BMD at hip" was very prevalent.<sup>45</sup> The discoveries of the DeVOS propose that the chances of having osteoporotic breaks in subjects expending calcium and vitamin D supplements were lower.<sup>24</sup>

### **2. Dietary Status**

Poor nutritious status is likewise an important chance factor

for osteoporosis. Body weight, 60 kg what's more, stature, 155 cm may altogether build the hazard of osteoporosis in women.<sup>30</sup> Various pathways interface bone and fat, which at last serve to build up a skeleton with proper BMD, to help the mass it needs to convey. Body weight, particularly fat tissue, is the fundamental deciding element for BMD.<sup>46</sup> Various examinations have shown a positive relationship between weight record and BMD.<sup>47, 48</sup>

### 3. Way of Life

urbanization has brought about an inactive way of life, diminished sun presentation, and lesser physical movement, which are hindering to bone health.<sup>19</sup> Physical work out, particularly weight-bearing activity, serves to enhance and keep up muscle and bone quality and likewise enhances body balance.<sup>49</sup> Absence of activity has been observed to be altogether connected with lower BMD in Kashmiri women.<sup>47,50</sup> Cigarette smoking, while at the same time being a noteworthy hazard factor for osteoporosis, has been observed to be too low among Kashmiri ladies to significantly expand their danger of osteoporosis.<sup>30</sup> In Worldwide Diary of Ladies' Wellbeing downloaded from Osteoporosis the study of disease transmission and treatment the Davos, it was accounted for that neither cigarette smoking nor liquor utilization was essentially related with predominant cracks in the examination subjects.<sup>24</sup>

### 4. Solution utilize

Johan et al have revealed a defensive impact of hormone substitution treatment (HRT) on bone thickness of the ladies subjects in their investigation; be that as it may, their investigation was not fueled to distinguish the subtle elements identified with chance variables, and the specimen measure was little to sum up the outcomes to the masses.<sup>51</sup> Long haul glucocorticoid utilize by elderly populace has additionally been accounted for as a noteworthy supporter of the expanding predominance of osteoporosis in elderly Kashmiri population.<sup>19</sup>

### 5. Past History of Cracks

while there are contemplates that have detailed history of breaks in the previous 5 years as a noteworthy hazard factor,<sup>30</sup> Maratha et al report that they did not discover the historical backdrop of past breaks to fundamentally increment the danger of vertebral fractures.<sup>24</sup>

### Prevention (Aversion) of Osteoporosis

Osteoporosis is a noiseless malady. Notwithstanding, once breaks happen, they result in torment and incapacities; breaks are moreover a huge monetary weight. Consequently, counteractive action is critical in this issue. In postmenopausal ladies, testing for BMD depends on the hazard profile, while for ladies more seasoned than 65 years, estimation of BMD is prescribed. Yearly measurement of stature is likewise prompted (for vertebral cracks). Proposed way of life changes incorporate an eating regimen rich in calcium (up to 1,000–1,200 mg/d) and presentation to daylight to make or, then again vitamin D supplementation to accomplish 800–1,000 IU/d. General weight-bearing and muscle-fortifying activities are likewise pushed. Further, maintaining a strategic distance

from practices, for example, smoking that hinder bone wellbeing and counteractive action of tumbles to maintain a strategic distance from delicacy breaks are important.<sup>52</sup>

### Treatment of Osteoporosis

#### Calcium and Vitamin D

Calcium with or without vitamin D is the main line treatment for the avoidance of bone misfortune and osteoporotic cracks; all things being equal, the adequacy of its utilization in break counteractive action is still unverifiable. Reports recommend that the diminishment of cracks is essentially more prominent in supplementation trials, where compliances are high and when no less than 1,200 mg of calcium and 800 IU of vitamin D are supplemented. Patients with lower vitamin D fixations and poor calcium admissions tend to advantage more than the patients with satisfactory calcium and vitamin D.<sup>53</sup> In the Ladies' Wellbeing Activity (WHI) examine, ~36,000 postmenopausal ladies (between 50 years and 79 years) got 500 mg of essential calcium with 200 IU of vitamin D<sub>3</sub> twice every day or fake treatments for ~7 years. Creators revealed a factually critical increment in the rate of renal stones.<sup>54</sup> Be that as it may, different examinations have not discovered comparable results and factors, for example, an expanded oxalate consumption and decreased admissions of fluids have been recommended as hazard factors in the arrangement of renal stones as opposed to the calcium and vitamin D supplementation.<sup>55,56</sup> Information on the admission of calcium what's more, vitamin D for the aversion of osteoporosis in Kashmiri ladies are rare; in any case, Jammu and Kashmir government programs give calcium supplementation (500 mg/d) just amid pregnancy and lactation.<sup>17</sup> An examination looking at the impact of two unique measurements (500 IU/d and 1,000 IU/d, the two gatherings gotten calcium carbonate 1,000 mg/d) of oral vitamin D<sub>3</sub> (cholecalciferol) on serum 25-hydroxy vitamin D [25(OH)-d] fixations in sound postmenopausal Kashmiri ladies inferred that higher measurements of vitamin D (1,000 IU) with calcium carbonate were required for the accomplishment of ideal serum 25-hydroxy vitamin (>30 ng/mL).<sup>57</sup> Within the sight of osteoporosis or expanded crack hazard, treatment with calcium and vitamin D is deficient and calls for pharmacological treatment as antiresorptive prescriptions or anabolic medications.

Bisphosphonates are generally the primary line of medications utilized at the point when pharmacological treatment is established. In our country Bisphosphonates are typically the main line of medications utilized at the point when pharmacological treatment is initiated. In Kashmir, most bisphosphonates, that is, alendronate every day, risedronate by week, ibandronate month to month, and zoledronic corrosive yearly are accessible and ordinarily utilized alongside calcium also, vitamin D supplementation.<sup>19,58</sup> Alendronate and risedronate decrease the rate of cracks of spine and hip by ~40%–half .3 years in patients with earlier vertebral crack. Risedronate is related with up to 49% reduction in new vertebral crack in ladies with earlier vertebral cracks. Ibandronate decreases vertebral cracks by 62%, while zoledronic corrosive, given by intravenous implantation yearly, diminishes the frequency of vertebral crack by 70%.<sup>52</sup> Hormone replacement therapy after menopause, due to the

lack of estrogens, the rate of bone turnover increases, resulting in accelerated bone loss. Indian guidelines for the treatment of postmenopausal osteoporosis advice that therapy with estrogen may be used for prevention and treatment of osteoporosis in the early post-menopausal period in women who are symptomatic. Therapy with estrogen or estrogen and progesterone is believed to prevent osteoporotic fractures and increase lumbar spine and femoral neck BMD over a period of 3 years.

Estrogen agonists Raloxifene hydrochloride with a measurement of 60 mg/d is a selective estrogen receptor modulator demonstrated for the prevention and treatment of postmenopausal osteoporosis. In the Various Outcomes of Raloxifene Evaluation (MORE) think about, which was an extensive trial on utilization of raloxifene, 7,705 postmenopausal ladies with osteoporosis were treated with raloxifene at a measurement of 60–120 mg/d for a long time. The investigation presumed that following 1 year, raloxifene 60 mg/d diminished the danger of new clinical vertebral cracks by 68% contrasted with fake treatment in the general examination populace and by 60% in ladies with pervasive vertebral breaks, who are at a more serious danger of resulting fractures.

Calcitonin lessens the event of vertebral breaks by ~30% in ladies with earlier vertebral breaks, however it has not been appeared to lessen the danger of nonvertebral fractures.<sup>52</sup> Since it is managed as a solitary every day intranasal shower, consistence is probably going to be higher. Supplementation with calcium and vitamin D is obligatory with calcitonin.

### Conclusion and Recommendation

All in all, bone wellbeing can be enhanced by making a condition to accomplish crest bone mass amid youthfulness, upkeep of sound bone for the duration of the life cycle, and anticipation of bone misfortune postmenopausal. In Kashmir ladies, expanding life span and hazard factors, for example, low calcium admissions, vitamin D insufficiency, sex disparity, early memo- stop, hereditary inclination, absence of demonstrative offices, what's more, poor information of bone wellbeing, have contributed toward the high pervasiveness of osteoporosis and cracks. Calcium, vitamin D, and bisphosphonates are the commonest first-line treatments utilized. The utilization of different medications, for example, HRT, estrogen agonists, calcitonin, PTH, and denosumab, are chosen as per the moderateness and accessibility of treatment choices. Real holes still stay in the determination and administration of osteoporosis, hence featuring the requirement for more organized examine around there. To overcome this silent disease, it is our primary duty to aware people about osteoporosis in Kashmir. At collective level, our concern should be “how to overcome it?” Moreover, what should be the immediate remedies to minimize this from Kashmir? Most effective way is to aware the people about osteoporosis and Govt of Jammu And Kashmir should take an initiative to aware people about dieting plan through print and electronic media.

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