

The Etiology and Prevention of Osteoporosis in Greek-O-Arabic (Unani) Medicine

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Abstract

Osteoporosis (pronounced as ahsteoporosis) is characterized by low bone mass with micro architectural deterioration of bone tissue leading to enhance bone fragility, thus increasing the susceptibility to fracture. Although exact numbers are not available, based on available data and clinical experience, 25 million Indians may be affected. Osteoporotic fractures in India occur in both sexes but are more common in females. It may occur at a younger age in India than in the West. The pharmacological interventions are expensive with limited or no cure promise, and the peak bone mass of the population can be increased significantly by appropriate and timely intervention in children. So, the public health measures that are efficacious, safe and cost-effective, must be adopted for the population at large. This calls the attention of the physicians of all the systems of medicine including Greek-o-Arabic (unani) system. Although, there is no description of osteoporosis in Greek-o-Arabic (unani) classical literature yet, the debility of body organs including bones is widely discussed. It is generally said that "prevention is better than cure", so a specific prevention plan must be structured as per Greek-Arabic norms. Nevertheless, before making the prevention plan one must understand the Greek-o-Arabic etiopathology of the disease. Therefore, this work is an attempt to understand the underlying causes and risk factors of osteoporosis, and to construct a mighty prevention plan. To keep the Greek-o-Arabic spirit alive, the typical Greek-o-Arabic terms are not translated into English.

Index terms— osteoporosis, asbab, su-e-mizaj, su-etarkeeb, tafarruq-e-ittesal, mahiyat-al-marzi.

1 Introduction

WHO defines osteoporosis as "The bone density that falls 2.5 standard deviation below the mean for young healthy adults of the same race and gender (also referred to as a T-score of -2.5)"¹. According to WHO, osteoporosis is second only to cardiovascular disease as a global health care problem². Worldwide, lifetime risk for osteoporotic fractures in women is 30-50%, in men risk is 15-30%³. One out of eight males and one out of three females in India suffers from osteoporosis, making India one of the largest affected countries in the world⁴. Experts say the number of osteoporosis patients is approximately 26 million Author : Lecturer, Department of Munafeul Aza, A& U Tibbia College, Delhi University, Karol Bagh, New Delhi-5. E-mail : draishaau@gmail.com Author : Professor, Deptt. of Kulliyat-e-umoor-e-tabia, AKTC, AMU, Aligarh. Ex-advisor (unani), ministry of health and family welfare, govt. of India.

(2003 figures) with the numbers projected to increase to 36 million by 2013⁵.

Realizing the burden of this disease on health professionals, the Greek-o-Arabic classical literature was explored in the light of modern etiological parameters, so that the exact pathology of the disease can be understood. This etiopathogenesis was availed to construct the Greek-o-Arabic prevention plan of the disease.

2 Causes of osteoporosis in Greek-o-Arabic (unani) medicine

Asbab (causes): According to Ibn Sina, there are four asbab (causes) of all the diseases namely asbab-e-maddi, asbab-e-souriya, asbab-e-fayeliya and asbab-e-tamamia⁶.

3 a) Asbab-E-Souriya

These are the asbab related to Mizaj, Quwa and tarakeeb Mizaj:

While discussing the causes of weakness of members (aza), Ibn Sina mentioned su-emizaj (persi-stent intemperament) as an important factor. He says "The causes of weakness of members include the per-sistent intemperament especially the cold one while the hot intemperament although enfeebles and benumbs an organ by corrupting the temperament of pneuma (rooh). Dry intemperament prevents the faculties from penetrating the organ by becoming thick. "Moist intemperament produces weakness by relaxing the organs and obstructing the passage". As the patients of osteoporosis do not show the signs of dominance of any khilt, therefore this su-e-mizaj must be su-e-mizaj sada. The primary qualities like cold and dryness show the properties of retention and holding and in this disease there is increased porosity of bones due to excessive depletion of bone mass, therefore, this su-e-mizaj must be su-e-mizaj haar or su-emizaj ratab or may be su-e-mizaj haar ratab. Quwa: Poor nutrition and malabsorption are the definite causes of Ca and vitamin D deficiency predisposing osteoporosis¹. This indicates that there is a malfunction of quwwat-e-ghazia in such a way that the quwwat-e-jaziba, masika, and hazima become weaker and quwwat-e-dafia becomes stronger than normal. The Studies have suggested that a major genetic component responsible for bone mass may be linked to polymorphism in the gene for vitamin D receptor (VDR)⁷. This genetic predisposition of osteoporosis indicates that there must be some dysfunction of quwwat-e-tanasuliya that manifests as this disease.

Tarakeeb: An attenuation of texture (su-etarkeeb) of the constituting fibres of an organ leads to weakness of the organs. Ibn Sina says in this context, "the looseness of the texture in the fibres of an organ leads to weakness. Special feature of this is that the person has no pain or discomfort"⁶.

Hence, su-e-tarkeeb is one of the important causes of osteoporosis in which the micro-structure of bones is disrupted without any pain or discomfort.

4 b) Asbab-E-Maddiya

These include the arkan, arwah, akhlat and aza: Arkan (ustuqissat): Ibn Sina says in Al-Qanoon that "the physicians must learn from physics that the primary elements are four and no more"⁶. These are arz, maa, hawa and naar as proposed by Aristotle. Each of these arkan bears the primary qualities and show specific characteristics. Ibn Sina says "in nature, the earth serves the purpose of making the objects firm and stable. Water has its being in the universe so that moulding of forms, shaping of coutures and attempering may become easy. In nature the purpose of air is to impart porosity, lightness and ability to rise upward". Hence, the cause of increased porosity of bones in osteoporosis may be because of the dominance of ustuqis-e-hawa (air) in the human body.

Arwah: Intemperament, dissipation or dispersion of pneuma can cause weakness of organs. It can occur by itself, following any kind of depletion, fever, pains or by foul smell, putrid water, and diffusion of poisonous effects in air⁶.

Akhlat: There is a strong correlation between akhlat-e-moharrika (hormones) and osteoporosis. Bone remodelling is regulated by several circulating hormones including oestrogens, androgens and parathyroid hormone. In addition, estrogen receptor ? (ER?) gene polymorphisms may also be associated with BMD in Indian women and may influence some determinants of bone metabolism resulting in accelerated age related bone loss⁸.

Estrogen deficiency causes bone loss by activating new bone remodelling sites and increasing bone reabsorption by osteoclasts. Thus, in the estrogen deficient states as menopause, bone loss is increased. In males, it is associated with testosterone deficiency. Hyperparathyroidism bone reabsorption is increased leading to bone loss and decreased BMD.

Aza: In osteoporosis, Aza-e-mufrida-izam (bones) are diseased and become light, porous and liable to fractures. In this disease quwwat-e-ghazia is weak-ened indicating zof-e-jigar and its aza-e-khadima.

Weak-ness of quwwat-e-tanasulya indicates the dysfunction of khusyatain.

5 c) Asbab-E-Fayeliya

These causes are divided into two groups:

1) Asbab-e-sitta zaruria These are six essential factors of life i. Hawa Faasid hawa is one of the important causes of dissipation of pneuma and intemperament of members making them weak.

ii. Makool-wa-mashroob Mal-nutrition or low dietary intake of Calcium, phosphorous, vitamin D, K and C is the main cause of osteoporosis. Also low protein intake is associated with lower peak bone mass during adolescence and lower BMD in elderly. Modest vitamin D deficiency [25hydroxyvitamin D levels <50nmol/L] leads to compensatory hyperparathyroidism and is an important risk factor for osteoporosis and fractures¹. Peak bone mass may be impaired by inadequate calcium intake during growth, leading to increased risk of osteoporosis in later life. In adults, insufficient calcium intake induces secondary hyperparathyroidism and increases the rate

101 of remodelling of bones. Excess of alcohol (>2units/day) especially in younger age group increases the risk. Some
102 studies indicate that soft drinks containing phosphoric acid may increase the risk of this disease¹. Thus, it can
103 be said that ghiza-e-qalil-al-taghzia, radi-alkaimoos is the cause of osteoporosis.

104 iii. Harkat-wa-sukun badani Physical inactivity such as prolonged bed rest and paralysis results in significant
105 bone loss¹. This indicates that sukun-e-badani mufarrat is one of the important factors of osteoporosis.

106 6 iv. Istafragh-wa-ehitbas

107 In renal diseases, kidney can't properly generate calcitriol from calcidol which is the storage form of calcium.
108 This increases the excretion of calcium in urine. Thus, istafragh-e-ghair tabayi increases the risk of osteoporosis.

109 2) Asbab-e-ghair zaruria These are discussed below: i. Mulk Wa Balad While osteoporosis can occur in all
110 the countries of the world, Europeans and Asians are more commonly involved.

111 ii. Jins iv. Adaat Smoking over a long period has detrimental effects on bone mass. These effects may be
112 mediated directly by toxic effects on osteoblasts or indirectly by modifying estrogen metabolism, likewise chronic
113 heavy drinking of alcohol predispose to osteoporosis. v. Umoor-e-ghariba Advia (drugs) like glucocorticoids, anti
114 convulsant, l-thyroxine, anti-coagulants, proton-pump inhibitor and thiazolidinediones when administered may
115 decrease bone mass. Amraz like endocrinal disorders, malabsorptions, rheumatological disorders, haematological
116 disorders and genetic diseases predispose osteoporosis.

117 7 d) Asbab-e-tamamia

118 In osteoporosis fail-e-taghzia of izam is deranged leading to porosity and weakness of bones.

119 i. Mahiyat-al-marzi (pathogenesis)

120 Osteoporosis is the disease of izam (bones). In the beginning there is su-e-mizaj haar ratab sada and tahlil-e-ruh
121 due to various asbab, leading to zof-e-jigar. This manifests in zof-e-quwwat-e-ghazia. The weakness of quwwat-
122 e-ghazia lead to inadequate bone formation while quwwat-e-dafia increases the bone reabsorption resulting in
123 decreased peak bone mass. This condition manifests in su-e-tarkeeb. In osteoporosis not only the bone density
124 is decreased, but the micro-architecture of bone is also disrupted. The weaker spicules of trabecular bone
125 breaks resulting in "Microcracks". This is an obvious form of tafarruq-e-ittehal-e-dakhili. Such porous bones get
126 fractured easily on fall causing tafarruq-e-ittehal khariji.

127 ii. Prevention plan (Tahaffuz)

128 The Greek-o-Arabic prevention plan of osteoporosis is made keeping the causative factors in mind. The salient
129 features of this plan are discussed below:

130 Living at a place with proper ventilation and adequate supply of healthy air (hawa-e-jayyadul jawahar) devoid
131 of any pollution.

132 Taking balanced diet containing all the essential nutrients including vitamins and minerals in adequate amount
133 i.e. taking ghiza-e-kaseer-al-taghzia jayyad-alkaimoos like maul lahm, beza neem barisht and lahm-etayyur.
134 Avoiding all the junk foods, cold drinks and alcohol beverages will also help.

135 Achieving a higher peak bone mass in adolescent is possible by exercise. jogging, walking or stair climbing at
136 70-90% of maximum efforts three times a week may increase bone density by 5% in 9 months i.e. maintaining the
137 level of hakat-wa-sukun badani tabayi is beneficial. Epidemiologic data reveals that when exercise is initiated in
138 adult life the peak bone mass increases by 1-2% in <2 years duration. But, excess physical activity can cause
139 damage to bones. Many marathon runners developed severe osteoporosis in later life. In females, heavy exercise
140 can lead to decreased estrogen levels predisposing osteoporosis.

141 Quitting bad habits like smoking and alcohol drinking. Avoiding the muzir advia and curing the muzmim
142 amraz in time can slow down the progress of the disease.

143 Taking Greek-o-Arabic (unani) calcium preparations orally like kushta sadaf (50mg OD) and khamira
144 marwareed (4gm OD) can provide organic calcium which may be helpful in preventing the disease.

145 II.

146 8 Conclusion

147 After above discussion, now the Greek-o-Arabic definition of osteoporosis can be presented "Osteoporosis
148 (takhalkul-e-izam) is that marze-murakkab of izam in which su-e-mizaj, su-e-tarkeeb and tafarruq-e-ittehal occur
149 simultaneously but gradually, leading to takhalkul and zof making them liable to kasar". Its various causes are
150 ghalba-e-unsur-e-hawa, su-e-mizaj haar ratab, qillat wa kasrat-e-akhlat-emoharrika, zof-e-jigar and khusyatain,
151 fasad-wa-tehlil-eruh, zof-e-quwwat-e-ghazia wa tanasulya and nuqsan-efail-e-taghzia-e-izam etc. it's asbab-e-
152 badia (environmental causes) are faasid hawa, ghiza-e-qalil-al-taghzia, radi-al-kaimoos, sukun-e-badani mufarrat,
153 istafragh-eghair tabayi, balad-e-maghrabi, jins-e-moannas, sin-ekahulat and adviyat and muzmin amraz.

154 Its mahiyat-al-marzi includes the su-e-mizaj haar ratab sada and tehlil-e-ruh. That results in zof-e-quwwat-



Figure 1:

155 e-ghazia wa tanasuliya followed by su-e-tarkeeb leading to tafarrq-e-ittesal dakhili making the bones liable to
156 kasar. ^{1 2 3}

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³()H

157 This disease can be prevented by residing in hawa-e-jayyad al jawahar, eating ghiza-e-kaseer-altaghzia jayyad-
158 al-kaimoos, maintaining the tabayi level of hakat-wa-sukun badani, and by taking Greek-o-Arabic calcium
159 supplements.

160 [Action Plan Osteoporosis: Consensus statement of an expert group Osteoporosis Society of India ()] ‘Action
161 Plan Osteoporosis: Consensus statement of an expert group’. *Osteoporosis Society of India* 2003.

162 [Boning uo on osteoporosis India Times ()] ‘Boning uo on osteoporosis’. [http://health.indiatimes.com/
163 articleshow/329953.cms](http://health.indiatimes.com/articleshow/329953.cms) *India Times*, 2004.

164 [Randell et al. ()] ‘Direct clinical and welfare costs of osteoporotic fractures in elderly men and women’. A Randell
165 , P N Sambrook , T V Nguyen . *osteoporos Int* 1995. 5 p. 427.

166 [Kesper and Fauci ()] *Harrison’s principles of internal medicine vol*, Braunwald Kesper , Fauci . 2005. II p. .

167 [Shah ()] *The General Priciple of Ibn Sina’s Cannon of Medicine, Idara Kitbul Shifa New Delhi*, M H Shah .
168 2007. 22 p. 211.