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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-o-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.

Keywords : *osteoporosis, asbab, su-e-mizaj, su-etarkeeb, tafarruq-e-ittesal, mahiyat-al-marzi.*

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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-o-Arabic norms. Nevertheless, before making the prevention plan one must understand the Greek-o-Arabic etio-pathology 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.

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I. 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 (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.

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.

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-e-mizaj* (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 pen-etrating the organ by becoming thick. "Moist intem-perament 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-e-mizaj 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 genetic factors are the major determinants of peak skeletal mass and density. Peak bone mass is often lower among individuals with a family history of

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osteoporosis1. 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-e-tarkeeb*) 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.

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 α (ERα) 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* (bo-nes) 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.*

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

iii. *Harkat-wa-sukun badani*

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

iv. *Istafragh-wa-ehtibas*

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

2) *Asbab-e-ghair zaruria*

These are discussed below:

i. *Mulk Wa Balad*

While osteoporosis can occur in all the countries of the world, Europeans and Asians are more commonly involved.

ii. *Jins*

This disease can occur in males but females are more commonly involved.

iii. *Asnaan*

Osteoporosis is the disease of *sinn-e-kahulat* commonly occurring between 50-70 years of age.

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iv. *Adaat*

Smoking over a long period has detrimental effects on bone mass. These effects may be mediated directly by toxic effects on osteoblasts or indirectly by modifying estrogen metabolism, likewise chronic heavy drinking of alcohol predispose to osteoporosis.

v. *Umoor-e-ghariba*

Advia (drugs) like glucorticoids, anti convulsant, l-thyroxine, anti-coagulants, proton-pump inhibitor and thiazolidinediones when administered may decrease bone mass. Amraz like endocrinal disorders, malabsorptions, rheumatological disorders, haematological disorders and genetic diseases predispose osteoporosis.

d) Asbab-e-tamamia

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

i. *Mahiyat-al-marzi (pathogenesis)*

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

ii. *Prevention plan (Tahaffuz)*

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

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

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

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

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

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

II. Conclusion

After above discussion, now the Greek-o-Arabic definition of osteoporosis can be presented

"Osteoporosis *(takhalkhul-e-izam)* is that *marz-e-murakkab* of *izam* in which *su-e-mizaj, su-e-tarkeeb* and *tafarruq-e-ittesal* occur simultaneously but gradually, leading to *takhalkhul* and *zof* making them liable to *kasar*". Its various causes are *ghalba-e-unsur-e-hawa, su-e-mizaj haar ratab, qillat wa kasrat-e-akhlat-e-moharrika, zof-e-jigar and khusyatain, fasad-wa-tehlil-e-ruh, zof-e-quwwat-e-ghazia wa tanasulya and nuqsan-e-fail-e-taghzia-e-izam* etc. it's *asbab-e-badia* (environmental causes) are *faasid hawa*, *ghiza-e-qalil-al-taghzia, radi-al-kaimoos, sukun-e-badani mufarrat, istafragh-e-ghair tabayi, balad-e-maghrabi, jins-e-moannas, sin-e-kahulat and adviyat* and *muzmin amraz*.

Its *mahiyat-al-marzi* includes the *su-e-mizaj haar ratab sada* and *tehlil-e-ruh*. That results in *zof-e-quwwat-e-ghazia wa tanasuliya* followed by *su-e-tarkeeb* leading to *tafarrq-e-ittesal dakhili* making the bones liable to *kasar*.

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

References Références Referencias

1. Harrison's principles of internal medicine vol. II (2005), Kesper, Braunwald and Fauci, et al, pp-2268-2278
2. "Boning uo on osteoporosis", India Times, 2004-http:health.indiatimes.com/articleshow/329953.cms.
3. Randell A, Sambrook PN, Nguyen TV, et al (1995), Direct clinical and welfare costs of osteoporotic fractures in elderly men and women, osteoporos Int 5:427.
4. http://www.outlookindia.com 2004-5.
5. Osteoporosis Society of India (2003) Action Plan Osteoporosis: Consensus statement of an expert group. New Delhi.
6. Shah, M.H., The General Priciple of Ibn Sina's Cannon of Medicine, Idara Kitbul Shifa New Delhi 2007 p-19, 22, 211

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7. Lo CW, Paris PW, Holick MF. Indian and Pakistani immigrants have the same capacity as Caucasians to produce vitamin D in response to ultraviolet irradiation. Am J Clin Nutr 1986; 44:683-5
8. Mitra S, Desai M, Ikram M. Association of estrogen receptora gene polymorphisms with bone mineral density in postmenopausal Indian women. Mol Genet Metab 2006; 87 : 80-7.

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