Comparison and Evaluation of Research Results in Women With Osteoporosis Period of Menopause

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ABSTRACT

It should be noted that the level of timely diagnosis and treatment of systemic osteoporosis remains low. Each of the existing systematic diagnostic methods is aimed at determining the structure or function of bone tissue. It should be remembered that in clinical practice, a comprehensive examination of patients is relatively rare. In addition, in 50% of cases, osteoporosis occurs without obvious symptoms (Franke Yu., Runge G., 1995; Rozhinskaya L.Ya., 1998). Thus, in modern dentistry, the study of the effect of general osteoporosis on the organs of the oral cavity, the prevention of complications of the disease remains an urgent problem.

Relevance of the study: Osteoporosis, with its multifaceted effects on the body, poses a challenge to all types of physicians, including dentists. This disease is a widespread disease not only in European and American countries, but also in Asian countries [2,5,6].

It is known that the violation of the structure and function of the alveolar bone in general osteoporosis has a very negative effect on the periodontal tissue (1,8,9), as a result of this the cause, together with other negative factors, leads to early tooth loss. Worldwide, the average age at which menopause occurs is 50.0 years, and this is greatly influenced by the region in which a woman lives. Thus, the average age at which menopause occurs in Uzbekistan varies from 49 to 51 years. It is 47.4 years in the southern regions, 48.4 years in the central regions of the country, and the highest indicator is up to 50.6 years in the western regions. The youngest average age at which menopause occurs is recorded in countries with a warm climate: Africa, Latin America, followed by Europe, Australia, and the United States [1,4].

In Russia, more than 21 million women are peri- and post-menopausal, and a third of them live in conditions of estrogen deficiency. It has been noted that young women who experience natural menopause depend on genetic factors related to the region of residence, race, socio-economic status, lifestyle and culture. Menopause has been found to occur later in women who are overweight, have a high physical load, and have a higher education and a job. Smoking has been shown to reduce the age at which menopause occurs by 1 year.

The purpose of the study: modern approach to the diagnosis and treatment of dental diseases in women with osteoporosis during menopause.

Research material and methods: During the research period, 150 menopausal women aged 45-55 years old, 45-55 years old, who were

registered as "D" according to the address of residence in Bukhara city and district polyclinics, were conducted in 2020-2022 on the basis o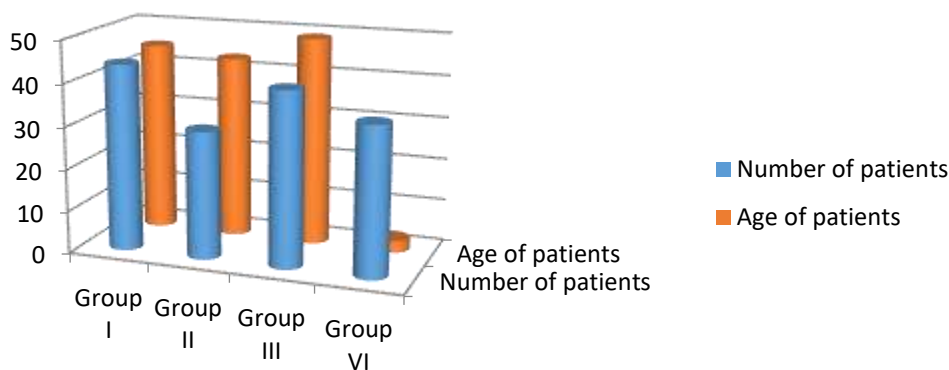f the Department of Therapeutic Dentistry of the Bukhara State Medical Institute. postmenopausal women with and without osteoporosis were examined (Figure 1).
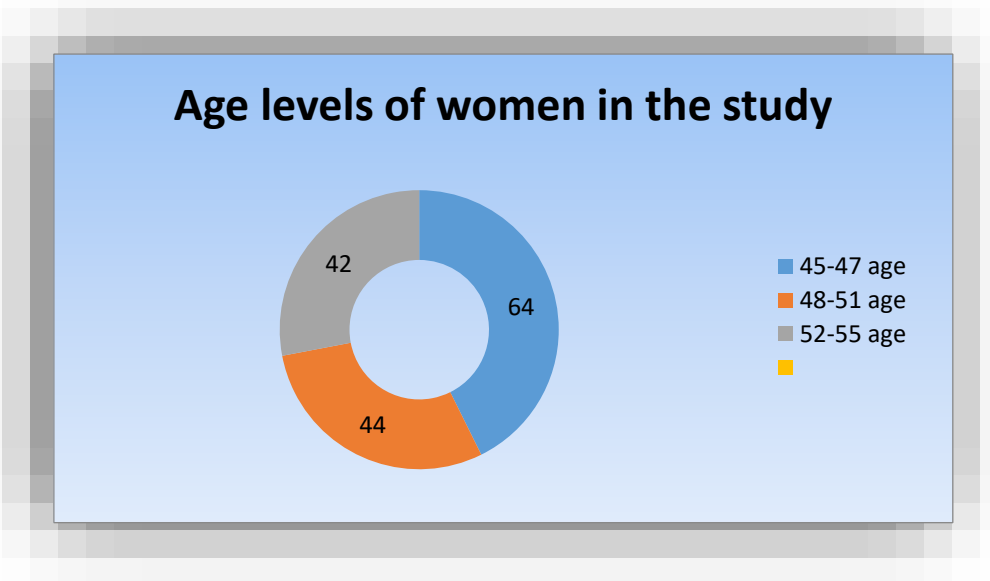
All women included in the study, who did not have known systemic diseases and harmful habits, were divided into 4 observation groups.

1-Table

Age levels of examined female patients in study groups.

Group I, women with osteoporosis during menopause, consisted of 44 women. Group II patients included 30 postmenopausal women without osteoporosis, Group III included 41 women with postmenopausal osteoporosis, and Group IV included 35 postmenopausal women without osteoporosis. The control group consisted of 32 women of fertile age with regular ovulatory menstrual cycles. The distribution of women by group is presented in Table 1.

In accordance with the purpose of the study and the tasks defined in the work, a comprehensive examination was carried out on all patients participating in the study, which included the collection of anamnesis, the clinical and radiological condition of the oral cavity and periodontal tissues, as well as the study of the qualitative and quantitative composition of the microflora in the periodontal pockets.

Results and analysis: Clinical examination of patients began with the collection of anamnesis. Particular attention was paid to the genetic predisposition to periodontal diseases, the general state of the patients' health, the experienced and related diseases, the reception of drugs were evaluated, the presence of harmful habits was determined (smoking, excessive consumption of carbohydrate-rich foods, etc.). During the collection of the questionnaire and the anamnesis, the patients' complaints and their nature were determined (bleeding from the gums, the nature of its occurrence: during eating or cleaning the teeth, dryness of the oral cavity, high sensitivity of the teeth, disorders of the dental-jaw system). In the appearance of the patients, the indicators of the face, skin covering, the color of the red border of the lips were evaluated, palpation of the regional lymph nodes was carried out. Also, the condition of the temporomandibular joint was studied, the nature of movement in the lower jaw, as well as the presence of gnawing and pain were evaluated.

When the oral cavity was examined, the location of the uvula and zygoma, the depth of the oral cavity, the tongue, palate, and tonsils were examined. The condition of the mucous membrane in the oral cavity, its color and moisture level were evaluated. Pathological changes were detected in the mucous membrane. When the tooth rows were registered, the presence of caries, filled and removed teeth, splinting structures, removable and non-removable orthopedic structures was noted, and the condition of periodontal tissues was evaluated as an index. Attention was also paid to non-carious damage of teeth: erosions, follicular defects, pathological decay of teeth were taken into account.

The simplest criterion for evaluating oral hygiene is the numerical calculation of the surface of the teeth covered by dental plaque. For this we used the Green-Vermilon method. G. Green and Wermillon I.R. (1964) proposed a simplified index of oral hygiene, OHI-S (Oral Hygiene Indices-Simplified). To determine OHI-S, the surfaces of the following teeth are studied: facial and lingual surfaces 5|5 6|6 and lip surface 1|1. All surfaces are pre-dented. The amount of staining on the surface of the teeth is determined as follows: six permanent tooth surfaces are painted with iodine-containing mixture - the labial surface of the upper central incisors, the vestibular surface of the upper first permanent large molar teeth, the lingual surface of the lower first permanent large molar teeth. The following system of caries determination is used: 0 – no caries (cannot be painted); 1 – caries covers less than 1/3 of the tooth surface; 2 - caries covers more than 1/3, but less than 2/3 of the tooth surface; 3 - caries covers more than 2/3 of the tooth surface. The amount of points in each tooth is added to the total and divided by six (the number of teeth). Three levels of hygiene in the oral cavity can be distinguished based on the amount of damage detected on the surfaces of the teeth: good, satisfactory and bad. The condition in which the stained look is detected in the neck of individual teeth can be evaluated as good (0-1 points). Satisfactory condition - the crown covers up to 1/3 of the tooth crown and a little more than 1/3 of individual teeth (1-2 points). Bad – the caries covers almost the entire surface of the crown, i.e. more than 2/3 of all examined teeth (2-3 points). This index makes it possible to draw conclusions about the state of hygiene in the oral cavity of children during the mixed bite period. In permanent teeth, we used the Fedorov-Volodkina index to assess the hygiene status of the oral cavity. Yu.A. Fedorov and Volodkina V.V. The index proposed by (1971) is determined by staining the labial surface of six frontal teeth with iodine mixture (iodine-potassium mixture). Quantitative evaluation is determined in a five-point system: Staining of the entire surface of the tooth crown - 5 points Staining of ¾ surface of the tooth crown - 4 points Staining of ½ surface of the tooth crown - 3 points Staining of ¼ surface of the tooth crown - 2 points No staining - 1 point.

$$Кср = \frac{\sum Kn}{n}$$

Here, Ksr is the general hygiene index, Kn is the cleanliness hygiene index for one tooth, and n is the number of teeth under study (as a

rule, GI should not exceed 1). PLI (Sylnex, Loe H., 1964) viewing index allows to check all teeth or some of them, depending on the desire of the researcher. With the help of a probe, without staining, the soft surface of the tooth is studied on four surfaces of the tooth (vestibular, oral, distal and medial). The amount of caries on the tooth surface is evaluated according to the following scale: 0 points – there is no caries in the subgingival area; 1 point - a thin layer of crust in the area above the gums, detected only with a probe; 2 points – the appearance is visible in the gum line and front of the neck; 3 points - the caries is very large on the surface of the tooth and between the teeth. The PLI index of the tooth is calculated by the following formula:

$$PLI = \frac{\sum SUMMARY\ BALLS}{4}$$

The PLI index of the oral cavity is determined as the average size of the PLI index of all examined teeth.

A simplified index of oral hygiene OHI-S (Green J.C., Vermillion J.R., 1964) was created on the basis of the Oral Hygiene Index proposed by the same authors in 1960, which is the result of segments (quadrants) on the facial and lingual surfaces of all permanent teeth, except for third molars. provided a quantitative assessment of supragingival and subgingival dental caries. The OHI-S index was proposed to evaluate oral hygiene according to the condition of six indicator teeth: upper and lower first molars 16 and 46, second adjacent molars in their absence) and two central incisors (11 and 31, in their absence - central incisor on the other hand teeth). Only one surface of the teeth is examined: upper molars and vestibular in all incisors, lingual in lower molars. The surfaces should not be damaged by caries and hypoplasia. Each surface is checked for soft plaque and tartar using a probe. On the surface to be examined (tongue, face), the probe is placed parallel to the axis of the tooth, and with zigzag movements, going from the occlusion surface of the tooth to the neck, the stone level is determined on the probe. The OHIS stone index is calculated as the sum of the gaze index.

Debris Index scale (Debris Index, DI-S): 0 points – no debris or pigment; 1 point – soft caries occupy no more than 1/3 of the height of the crown, or there is extradental pigmentation without visible soft caries anywhere on the surface (Priest caries); 2 points - soft caries cover more than 1/3 of the crown height, but less than 2/3 of the surface; 3 points - soft caries covers more than 2/3 of the tooth surface. Calculus index scale (Calculus Index, CI-S): 0 points – no calculus; 1 point – gingival calculus occupying no more than 1/3 of the examined surface; 2 points – supragingival calculus or individual fragments of subgingival calculus occupying more than 1/3 but less than 2/3 of the studied surface; 3 points - supragingival calculus covering more than 2/3 of the surface or subgingival calculus surrounding the tooth neck. The DI-S and CI-S data of each tooth are entered into a special table with six cells, each divided diagonally in two. To calculate OHI-S, DI-S and CI-S index of all teeth are added:

$$OHI - S = \frac{\sum(DI - S) \pm \sum(CI - S)}{6}$$

According to OHI-S data, the state of oral hygiene is evaluated as follows: when OHI-S is not more than 0.6 - good hygiene; when it is 0.7-1.6 - satisfactory; 1.7-2.5 – unsatisfactory; >2.6 – poor hygiene. Three levels of hygiene in the oral cavity can be distinguished based on the amount of damage detected on the surfaces of the teeth: good, satisfactory and bad. The condition in which the stained look is detected in the neck of individual teeth can be evaluated as good (0-1 points). Satisfactory condition - the crown covers up to 1/3 of the tooth crown and a little more than 1/3 of individual teeth (1-2 points). Bad – the caries covers almost the entire surface of the crown, i.e. more than 2/3 of all examined teeth (2-3 points). Determining the modified periodontal index according to Russel - the periodontological index (PI) allows to evaluate the pathological process in the periodontium at each stage of the development of this disease, as well as to correctly explain the development of the inflammatory process during treatment measures and during dispensary monitoring of the periodontological patient.

This index can be used on 6 sextants in the area of first molars and incisors in the upper and lower jaws, as well as all existing teeth. The obtained points are added and divided by the number of teeth in the examined areas.

The depth of periodontal pockets was studied using a graduated periodontal tube, measurements were made at 6 points around each studied tooth (three points on the vestibular surface and three points on the oral surface).

The severity of periodontitis was determined based on the depth of PCh and the level of destruction of bone tissue. Thus, in the mild degree of UP, the PCh was up to 3 mm, and the X-ray image confirmed the initial signs of destruction of the walls between the teeth. In the middle level of UP, the depth of periodontal pockets varied from 3 to 6 mm. The destruction of the bone tissue of the cortical plate and the barrier between the teeth was up to V part of the root length in the X-ray study. The severe degree of UP was characterized by the presence of periodontal pockets larger than 6 mm, pathological mobility of teeth at 2-3 levels, destruction of the cortical plate and bone tissue in more than V of the root length.

Periotestometric study of women with osteoporosis during menopause. During the study, this method was used using the device "Periotest-3218", a device based on indirect assessment of the condition of periodontal tissues, which allows to determine the functional capabilities of periodontal tissues under the influence of external forces applied to the tooth. The principle of operation of the device is based on the conversion of an electrical impulse into a mechanical one. The research methodology provides tooth percussion using a special sensor (Bock) equipped with piezoelectric. Percussion is performed regularly (250 ms) at the level between the cutting edge of the tooth under study and its equator.

The microprocessor of the device registers the response of the periodontal tissue, the speed of which depends on the elasticity and durability of the ligament apparatus of the tooth. With healthy periodontal disease and the absence of general somatic pathology, this periotestometry (for an average of 16 beats) is from -5 to +10 units. In periodontal diseases, these indicators range from +10 to +30 or more units, depending on the severity of the pathology.

A bacteriological study of the microbial landscape in the oral cavity of postmenopausal women with osteoporosis was conducted. Laboratory methods included a microbiological study of the composition of oral fluid and gingival canal.

During the study, we found that such a method of examination is very important in women with osteoporosis during menopause. We used x-ray, computer tomography, orthopantomography examination methods. Today, light diagnostic methods are of great importance in the diagnosis of diseases. Medical radiology is one of the youngest and currently dynamically developing sciences of medicine. Today, there are various methods at the disposal of doctors. There are indications and contraindications for radiological examination. Rules for appointment of X-ray examination, issuing a referral for examination. X-ray image formation and its properties (summation, image, superposition and subtraction of shadows, tangential effect, changes in the size and shape of the object in the projection image).

Conclusion: Thus, in women patients with generalized periodontitis on the basis of osteoporosis during menopause, clinical features are observed - significant gum recession and bone tissue resorption. Mixed periodontopathogenic flora identified in periodontal pockets. Changes in markers of bone remodeling in the direction of resorptive processes, decrease in the concentration of osteocalcin. Morphological gum was characterized by increased serotonin expression. As noted, such changes of mineral density of bone tissue and morphological indicators of gums were characteristic of female patients with general periodontitis against the background of menopause-based osteoporosis. The results of the study showed that the use of modern examination methods in

the assessment of the dental status of postmenopausal women with osteoporosis helps to prevent complications of periodontal tissue and other dental diseases.

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