ASSESSMENT OF THE STATE OF MINERAL DENSITY IN WOMEN IN DIFFERENT PERIODS OF MENOPAUSE

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Osteoporosis is a skeletal disease characterized by low bone mass, structural deterioration of bone tissue, and reduced bone strength, which predisposes to an increased risk of fractures [1,2]. It is one of the most common metabolic diseases and a major cause of morbidity and morbidity. mortality among the elderly [3]. Previous studies have shown that some conditions such as aging, gender, period of amenorrhea, parental history of fractures, [4,5] dietary calcium intake, vitamin D deficiency, low body mass index (BMI) [6], reduced physical activity, [7] and thyroid function have been proposed as associated factors in changes in bone mineral density in the elderly.

In postmenopausal women, an acceleration in bone resorption begins at about 3% of bone resorption each year immediately after menopause, and bone mass decreases exponentially. In order to prevent and treat osteoporosis and the fractures it causes, it is important to determine the most active period of bone resorption and the highest risk of osteoporosis.

Purpose of Study - In this study, we evaluated the correlation between bone density and menopausal periods for the treatment of menopausal osteoporosis.

Materials and methods of research

The material for the study was 90 women in the perimenopausal period, who underwent measurements of both bone density and biochemical analyzes in blood serum, who were treated at the regional multidisciplinary hospital in the city of Bukhara, Uzbekistan. 18 women were excluded because the timing of menopause was not clear, they had a history of metabolic disease or fractures, or they were taking medications that could affect bone metabolism or cause kidney failure. The remaining 72 subjects were included in the study.

Among women visiting the hospital, menopause was defined as a serum estradiol level of less than 0.05 nmol/mL and no menses for more than 1 year. 78 subjects were divided into three groups: group I, menopause less than 5 years; Group II, menopause older than 5 years and less than 10 years; Group III, menopause for more than 10 years. Each group was then divided into a group with osteoporosis and a group without osteoporosis based on bone mineral density (BMD). For the diagnosis of osteoporosis, a T-score obtained by dividing the average bone density of a young adult group of the same sex (according to Lunar) was used as a standard, and a T-score of -2.5 or lower was defined as osteoporosis. Comparison of baseline characteristics between groups was assessed using Student's t-test. Intergroup analysis of variables based on postmenopausal period was performed using ANOVA with a statistically significant $p<0.05$.

Research results

Of the 78 subjects, 35, 21, and 22 were assigned to groups I, II, and III, respectively, and the mean postmenopausal period was 52.3±1.2. The mean age of each group was 52.3±3.4 years, and the mean age of the group menopause was 50.0±3.3 years, respectively. The mean age of women at menopause was not statistically significant, but age at menopause tended to be lower in the elderly. We studied the demographic characteristics of women in the study groups. See table 1 below.

Table 1

Demographic characteristics of women in the study groups

Criteria	Group I	Group II	Group III
Age (year)	52,3±3,4	57,5±4,3	64,4±5,7
Menopause (age)	50,0±3,3	49,5 ± 4,2	48,5±4,4
Length of menopause (year)	2,3±1,2	8,0±1,1	10,9±1,6

Source: Own study

Values are presented as a number or mean ± standard deviation.

BMD decreased significantly as the postmenopausal period increased, consistent with previous studies. In particular, the IPC in group III decreased significantly. Due to the age-

related decrease in BMD in group III, the duration of the postmenopausal period in group III was much longer than in other groups, as well as the duration of bone loss due to estrogen deficiency.

In this study, the level of alkaline phosphatase (AP) increased from group I, 228±0.2 U/l, to group II, 234±0.9, but decreased again in group III, 215±0.44. This suggests that bone renewal is most active between 5 and 10 years after menopause. When the groups were divided into groups with and without osteoporosis, and the postmenopausal period was divided into 1-year intervals, both groups had the highest levels of bone density between 7 and 9 years post-menopause. A more detailed analysis showed that the three levels of bone density in the non-osteoporotic groups showed the highest levels between 7 and 8 years postmenopause, and the three levels of BMD in the osteoporotic groups showed the highest levels between 8 and 9 years postmenopause. This shows that the absolute bone loss was greater and the duration of active bone loss was longer in the osteoporosis group. Approximately 10 years after menopause, the rate of bone turnover decreases again. Therefore, early measurement of BMD in postmenopausal women to detect high-risk osteoporosis and earlier administration of an antiresorptive agent would be effective in treating postmenopausal osteoporosis and reducing the risk of fracture.

Conclusions

Thus, bone resorption and formation were highest 5-10 years after menopause. Compared to postmenopausal women without osteoporosis, women with postmenopausal osteoporosis have a higher rate of bone turnover and longer-term bone loss. Therefore, regular measurement of BMD in the early postmenopausal period prior to an increase in bone turnover rate is important for the early diagnosis of postmenopausal osteoporosis and for the timing of treatment. Given the convenience of testing and measurement errors in the clinical setting, ALP is a more useful marker of bone resorption. Consistent measurement of BMD for 5 years after menopause is necessary to select the best time to treat postmenopausal osteoporosis.

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