

The drug Ostalon was appointed to 11 women aged 53 to 79 years (middle age 67.82 ± 2.71 years), duration of menopause from 0 to 32 years (average length of 13.73 ± 2.97 years) and duration of CLL 1 to 240 months (average length of 46.27 ± 20.76 months) and 4 men aged 46 to 75 years (middle age 61.75 ± 6.18 years) with disease duration from 2 to 18 months (middle duration of 7.50 ± 3.66 months.) with stage B and C disease.

Bivalos was intended for 3 months to 17 women aged 55 to 79 years (middle age 71.29 ± 1.56 years), duration of menopause from 0 to 39 years (average length of 19.50 ± 2.23 years) with disease duration from 0 to 180 months (average length of 47.82 ± 12.61 months) with stage B and C disease.

Statistical analysis and visualization of the data were performed using the statistical package OpenStat and Statgraph-ics (version 3.0).

Results. The patients with CLL levels of minerals in the BT of the LS in a group of women with age categories up to and over 60 years was significantly lower than in groups of men in their respective age categories. Osteopenic and OP changes in bone LS were observed in the group of men and women with CLL, and to over 60 years. Osteopenic syndrome is part of the clinical course of CLL — his lowest percentage (25 %) found in the category of men to 60 years of disease duration of 1 year, and the largest (100 %) — a group of women 60 and older than 60 years in groups with a duration disease over 5 years. In general patients with CLL groups OP level changes than the general population BT parameters and is over 50 %. Osteopenic and OP changes in BT LS were observed in the group of men and women with CLL, and to over 60 years.

Statistical modeling methods were statistical models of BMD changes depending on: a) sex and stage of disease ($p < 0.01$); b) sex, stage of disease and relative terms due to the BMD in young age ($R2 = 0.93$; $p < 0.05$); c) the stage of disease and chemotherapy protocols ($R2 = 0.96$; $p < 0.05$), corresponding to a high level of predictive. The calculation of the interest component of effective model proved reliable factors significant contribution of sex and stage of disease, and depending on the method chosen and the last chemotherapy treatment, prediction of BMD at the patients with CLL.

The prescription of Calcium-D₃ Nycomed for 4 months at a dose of 1000 mg per day for women did not give any results in significant changes in BMD. Analyzing the state of BT LS at the men after treatment Calcium-D₃ Nycomed marked

increase in BMD was significantly in all areas studied, except vertebra L2. The ratio of the detected BMD due to its the same age, expressed as a percentage, was significantly increased in the vertebrae L1 and L3 and the total areas L1-L2, L1-L3, L1-L4, L2-L3, L3-L4. In absolute terms was significant growth in all areas of study except L3-L4.

The prescription of the drug Ostalon for women with CLL has led to the increase of BMD statistically reliable data in L3, L1-L3, L1-L4 (at 5.4 %), L2-L3. Significant increase in the correlation between BMD diagnosed with due at a young age as a percentage observed in L3 and the total areas of the L1-L2, L1-L3, L1-L4, L2-L3. In absolute terms, it is statistically increased in areas of total L1-L3, L3-L4. The content of minerals has grown significantly in L2 and the total area of L1-L4 (8.5 %).

There was observed a significant increase in BMD LS at the women after therapy Bivalos and statistical reliability in all vertebrae. Significant increase in the correlation between BMD detected due to the young age as a percentage and in absolute terms the whole strength of LS. The same pattern was observed in relation to the value of BMD detected due to the same age. The content of minerals in BT was significantly increased after treatment Bivalos throughout the study area (total area at L1-L4 18.5 %), with the exception of vertebra L4. As for the geometric characteristics of LS — height, width and area of the vertebrae, changing these parameters were not statistically significant.

The index, which reflects the ratio of the width of the content of minerals vertebrae was significantly increased by vertebrae L1, L2, L3 and summary sections L1-L2, L1-L3, L1-L4 (13.5 %).

In assessing of the impact on EORTC QLQ-C30 there was revealed a significant increase in the basic indicators of women who received treatment programs correction BT, comparing with groups of men.

Conclusion. Structural and functional state of BT at the patients with CLL is characterized by a decrease in the strength of the main characteristics of BT mineral content and BMD decrease. Reduced BMD in osteopenic and osteoporotic form changes require the development of adequate methods of medical treatment at different stages of the disease. Treatment with the drug program Calcium-D₃ Nycomed, drug Ostalon and drug Bivalos can be implemented in practice treatment of osteopenic syndrome at the patients with CLL.

ZAZDRAVNOV A.

Kharkiv National Medical University, Kharkiv, Ukraine

Duality of Genesis of Osteopenic Syndrome in Patients with Central Form of Ankylosing Spondylitis Complicated by Gastroesophageal Reflux

Introduction. Ankylosing spondylitis (AS) is a frequent (0.2–2 % in the population) rheumatic disease with systemic extraarticular manifestations. The main clinical form of the AS is the central form. Patients with central form of AS suffered by disorders in the cervical and thoracic spine. These changes negatively affect the

localization and the function of the neck and chest cavity, including the esophagus. It was found (on the basis of own previous studies) the clinical and endoscopic signs of gastroesophageal reflux (GER) were present in 3/4 patients with central form of the AS. Another frequent systemic manifestation of AS is osteopenic syndrome (OPS). OPS observed in 77–85 % of patients with AS. These disorders (GER and OPS) contribute to the progression of functional impairment and disability in patients with AS.

Aim. To investigate the mechanisms of formation of OPS in patients with central form of AS complicated by GER.

Materials and methods. 31 patients with AS complicated by GER were examined (main group). GER manifests a few years after the debut of the AS in all patients. Proton pump inhibitors (PPI) used to treat GER in the patients of main group. 20 patients with AS without GER have formed comparison group. Bone mineral density was studied by ultrasound densitometer Achilles Express. Statistical analysis was performed by parametric statistics. Reliability of differences was assessed by Student t-test. The relations between the qualitative attributes were investigated by calculating of the coefficient of association Yule — Q.

Results and discussion. OPS was detected in 25 (80.6 %) patients of the main group and in 14 (70.0 %) persons of the comparison group. Reliable differences in frequency of OPS between patients from main group and patients from comparison group have not been revealed. On the second stage of the study the main group of patients was divided into two subgroups (A and B) depending on the duration of PPI therapy. 20 patients received PPI less than 3 years (mean duration of using — 1.1 ± 0.6 years) were included in subgroup A. 11

patients received PPI more than 3 years (mean duration reception 4.1 ± 1.0 years) and they formed subgroup B. OPS was detected in 17 (85.0 %) patients from subgroups A and in 8 (72.7 %) patients from subgroup B. Index Z in patients of the subgroup A was -0.610 ± 0.088 , index Z in patients of the subgroup B was -0.850 ± 0.113 . Reliable differences in the index Z between the two groups of examined patients were absent ($p > 0.05$). However, the index T in the subgroup B (-2.700 ± 0.205) was significantly ($t = 4.080$, $p < 0.001$) lower than in the subgroup A (-1.720 ± 0.120). Analysis of relations between the prolonged use of PPI in patients with AS complicated by GER, on the one hand, and OPS, on the other hand, revealed medium strength association ($Q = +0.360$, $p < 0.05$).

Conclusion. Prolonged use of PPI in the treatment of GERD in patients with central form of AS enhances the expressivity of OPS. In my opinion, this situation is a result of occurrence of the calcium malabsorption phenomenon in hypoacid conditions. Thus, doctor should prescribe an additional antiosteoporotic drugs in the treatment of GER by PPI in patients with AS.

ZHULKEVYCH I., UGLYAR T.

Ternopil State Medical University named after I.Ya. Gorbachevsky, Ternopil, Ukraine

Fractal Analysis of the Bone Tissue Status in Patients with Non-Hodgkin Lymphoma

Introduction. The change in mineral bone tissue (BT) density in patients with solid tumors, acute and chronic leukemias is a known fact. However, very few studies are devoted to monitoring the dynamics of mineral density changes of BT in patients with non-Hodgkin lymphoma (NHL). According to research rare mineral density BT changes are observed in 30–35 % of patients, and the average age of patients is over 60 years.

Aim of the research is to explore the dynamic changes of BT in patients undergoing NHL chemotherapy stage of treatment using the method of virtual bone biopsy.

Materials and methods. The analysis of changes of mineral density by direct measurement of BT density (in Haunsfeld units) in trabecular parts of vertebrae of thoracic and lumbar spine on computer axial tomograms at stages of diagnosis and after chemotherapy (4–6 courses of chemotherapy CHOP protocol) treatment. In order to standardize and stabilize images of trabecular vertebrae we used universal digital filter — «Mexican hat» wavelet. Densitometry of trabecular vertebrae layer in thoracic and lumbar spine was performed in the applications of mathematical analysis of medical images DICOM — ClearCanvas Workstation and ImageJ with the BoneJ extension, freely distributed by the National Institute of Health (USA). Fractal dimension was observed by map-counting and box-counting algorithms.

Number of the patients was 30. 11 men and 19 women were among them. Average age was 64.51 ± 2.84 years. The diagnosis was established by the NHL world

(NCCN, ESMO) and national criteria for the diagnosis of compulsory morphological and immunohistochemical verification. In all patients there was B-macrocell, CD20 positive lymphoma.

Results. Based on the analysis of axial slices BT scans and measurements of vertebral trabecular density of thoracic and lumbar spine in the above terms we found negative trend changes in patients' BT. Changes in density of BT at diagnosis of disease stage were seen in a decrease in trabecular density of the vertebrae in 7 (63.6 %) men and 16 (84.2 %) women. Registered changes were mostly found in women and the depth decrease of vertebral BT density in women was significantly higher than in men. After completing chemotherapy in all patients there was further decline in the density of BT, but the rate of decrease was detected in different gender groups. Densitometric and fractal analysis (according to map-counting and box-counting algorithms) of the state of vertebral trabecular BT showed direct positive and reliable connection between the above parameters.

Conclusions. 1. The reduce of vertebral BT density of thoracic and lumbar spine of patients with NHL requires monitoring BT at all stages of the management of patients with NHL. 2. The reduce of density of trabecular vertebrae in patients with NHL occurs at different rates for men and women at chemotherapy treatment stage. 3. There is a direct and reliable connection between densitometric characteristics and fractal dimensions (according to map-counting and box-counting algorithms) of state of trabecular vertebrae in patients with NHL. 4. The perspective for further research is to identify the causes of changes in BT density in patients with NHL and the main factors that lead to it, as well as inclusion of the modifiers of BT into the maintenance and correction therapy.