FACTORS FOR INCREASED RISK OF OSTEOPOROSIS AND OSTEOPOROTIC FRACTURES IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE AND SARCOPENIA

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Objective is to assess the incidence of osteodeficiency and osteoporotic fractures risk in patients with non-alcoholic fatty liver disease and sarcopenia in the presence of visceral obesity.

Materials and Methods. 49 patients (mean age 61±7.1 years) with non-alcoholic fatty liver disease (NAFLD) were examined. When managing a patient with a high risk of osteoporosis, we used various tools – a minute test for osteoporosis (developed by the International Osteoporosis Foundation); FRAX algorithm, (for calculating the 10-year probability of a major osteoporotic fracture and the 10-year probability of a femoral neck fracture in a patient); QFracture calculator (with an additional opportunity to calculate the risk of a bone fracture from 1 year to 10 years, including a more extended list of conditions associated with fractures than FRAX special the patient's tendency to fall). The estimation of the 10-year probability of the main osteoporotic fracture was made using the FRAX and QFracture models specific to the respective ethnic group. All patients were exposed dual-energy X-ray absorptiometry, which determined bone mineral density and the content of visceral fat in the body. Diagnosis of sarcopenia was based on the assessment of the content of muscle mass (bioimpedance method) and the determination of the index of muscle strength. The statistical significance of differences in the studied parameters was evaluated by the nonparametric method (by $\chi 2$ criterion).

Results. All examined patients with non-alcoholic fatty liver disease and sarcopenia were divided into subgroups depending on the absence/presence of visceral obesity. In the presence of visceral obesity, the risk of osteoporotic fracture is significantly lower ($\chi 2 = 8.947$, df =1, p=0.003) than with the normal content of visceral fat in the body, but osteodeficiency (osteopenia and osteoporosis) is more common ($\chi 2=7.139$, df=1, p=0.007). In patients with non-alcoholic fatty liver disease and sarcopenia, bone mineral density is significantly lower ($\chi 2=4.864$, df=1, p=0.027) and the probability of major osteoporotic fracture is significantly higher when evaluated with the QFracture calculator ($\chi 2 = 9.01$, df = 1, p = 0.003).

Conclusions. The presence of visceral obesity and sarcopenia in patients with non-alcoholic fatty liver disease can be considered as potential factors contributing to the development of osteodeficiency and as prognostic indices that increase the probability of osteoporotic fractures. In patients with visceral obesity, there is a discrepancy between the lowered risk of osteoporotic fracture and low bone mineral density indices, thus in this category of patients, an additional determination of bone mineral density is recommended. A more sensitive tool for assessing osteoporotic fracture probabilities at non-alcoholic fatty liver disease and sarcopenia is the QFracture calculator. Possible factors that may affect bone mineral density and the risk of osteoporotic fractures in patients with non-alcoholic fatty liver disease may be impaired liver function. First of all, there is an increase in the production of cytokines in the damaged liver, which affects the microenvironment of the bone. Liver dysfunction also leads to insufficient synthesis or accelerated catabolism of vitamin D_3, which increases vitamin D deficiency and adversely affects the level of physical activity. Among other functional disorders should be noted disorders in bone metabolism in patients with NAFLD. The results of the study will contribute to a better understanding of the relationship between NAFLD and changes in bone metabolism, as well as to become a basis for the development of pathways for the prevention of osteoporosis in patients with NAFLD. The prospect of our further research will be to study the polymorphism of the genes responsible for the formation of bone mass peak and bone quality.

ASSESSING THE BENEFITS OF A SCREENING PROGRAM FOR BREAST CANCER

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Objective. Increasing the effectiveness of a screening program for breast cancer.

Materials and methods. The study was conducted in patients.

GKP City Oncology Dispensary. Shymkent. During the study, questionnaire and interview methods were used. The study involved 50 women aged 40 to 70 years. The main causes of malignant neoplasms are 80–90% of environmental exposure and 10–15% of genetic factors. The questionnaire was distributed among them. According to a survey of 10 (20%) pensioners, 18 (36%) employees, 12 (24%) unemployed, 6 (12%) disabled people in 2 groups, 4 (8%) in 3 groups. To assess the likelihood