THE INFLUENCE OF EXOCRINE PANCREATIC INSUFFICIENCY IN THE FORMATION OF OSTEOPENIA IN PATIENTS WITH PRIMARY OSTEOARTHRITIS

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ABSTRACT
The aim: Make complex study of bone density in patients with primary osteoarthritis and exocrine pancreatic insufficiency and patients with primary osteoarthritis without exocrine pancreatic insufficiency.

Materials and methods: There were examined 140 patients with primary osteoarthritis without exocrine pancreatic insufficiency and combination osteoarthritis and exocrine pancreatic insufficiency. Diagnosis of osteoarthritis was based on diagnostic X-Ray criteria – according to J.H. Kellgren and J.S. Lawrence. The level of exocrine pancreatic insufficiency was based on result of Elisa test. State of mineral bone density was examined by using dual-photon densitometry.

Results: It was established that there was a progressive, statistical, significant increase of mineral density of bone tissue in the 1-st group patients with osteoarthritis. Patients in the 2-nd group, with osteoarthritis in the comorbidity with exocrine pancreatic insufficiency, the densitogram rates were statistically significantly lower than in patients in the 1-st group.

Conclusions: The changes of bone tissue can be explained by the formation of trophological insufficiency as a result of exocrine pancreatic insufficiency. One of the symptoms of trophic failure is bone and mineral changes, in particular, the decrease of bone density.

KEY WORDS: osteoarthritis; exocrine pancreatic insufficiency; mineral density of bone tissue
RESULTS AND DISCUSSION

Analysis of obtained fecal elastase-1 values has shown the presence of exocrine pancreatic dysfunction in both investigated groups – (153.83±5.34) mk/kg and (58.65±4.73) mk/kg respectively in comparison with control group (213±6.29) mk/kg as well as statistically accurate lower level of fecal elastase in second group compared to the first one (р<0.05). It has proved the presence of deeper exocrine pancreatic dysfunction in osteoarthritis with concomitant gastrointestinal disorders and exocrine pancreatic dysfunction as well as presence of mild exocrine pancreatic dysfunction in 1-st group of people diagnosed with isolated osteoarthritis without gastrointestinal disorders (р<0.05).

It supports the idea about necessity and importance of this problem investigation and taking into account the presence of exocrine pancreatic dysfunction in both groups for effective complex of patients rehabilitation who were diagnosed with osteoarthritis and concomitant gastrointestinal disorders and osteoarthritis without concomitant gastrointestinal disorders.

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Obtained densitometrical values showed that the patients with primary osteoarthritis without gastrointestinal disorders (1-st group) are more likely to develop of mineral density of bone tissue, densitometrical values were statistically more significant in comparison with referent base of Lunar (р<0.05) however were in normal reference range according to the age. In the 2-nd group which the patients had primary osteoarthritis with gastrointestinal disorders the values of densitometry were statistically significantly lower compared to referent base of Lunar and reflected Osteopenia, stage 2 (р<0.05).

In Figure 1 it is showing the regression and correlation analysis between mineral density of bone tissue and indicator T (%) on the level of fecal α-elastase.

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Sum up the results of research, we can talk about the negative influence of exocrine pancreatic insufficiency to the of bone mass.

Densitogram in 1-st group patients shows the tendency of patients with primary osteoarthritis to increase mineral density of bone tissue. The results were statistically significantly higher in relation to the referent base Lunar (p<0.05), but were within the age range.

Patients in 2-nd group, with primary osteoarthritis with gastrointestinal disorders, the densitogram rates were statistically significantly lower than in patients 1-st group, and lower in relation to the reference base of Lunar and were at the 2-st level of osteopenia. (p <0.05). Completed correlation and regression analysis established significant correlation between bone mineral density and fecal elastase value and also has proved importance of functional state of pancreas in trophic insufficiency development and osteopenia for patients with osteoarthritis

CONCLUSIONS
1. More severe exocrine pancreatic dysfunction in case of osteoarthritis and concomitant gastrointestinal disorder and mild exocrine insufficiency of pancreas in patient with osteoarthritis without gastrointestinal disorder were proved.
2. In patients with primary isolated osteoarthritis mineral bone density has been improving densitometrical values were statistically significantly higher than Lunar reference values.
3. Patients with primary osteoarthritis and gastrointestinal diseases characterized by severe exocrine pancreatic dysfunction were diagnosed with 2-nd stage of osteopenia.
4. Completed correlation and regression analysis established significant correlation between bone mineral density and fecal elastase value and also has proved importance of functional state of pancreas in trophic insufficiency development and osteopenia for patients with osteoarthritis (p<0.05).

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Conflict of interest:
The Authors declare no conflict of interest.

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