State and metabolism of osseous tissue in people with postinfarction cardiosclerosis

[1]Yankouskaya L.V., [2]Karpova I.S.
[1]Grodno State Medical University
[2]Republican Scientific-Practical Center Cardiology

- Cardiovascular diseases is an actual problem of the national health service as well as worldwide.
- The aim of our study was to assess the state of osseous tissue and markers of bony metabolism (MBM) in patients with postinfarction cardiosclerosis.

Materials and methods:

- Group I included 16 healthy individuals (62.3±6.05 years),
- group II – 29 patients with postinfarction cardiosclerosis (62.9±5.46 years).

Materials and methods:

- Structural and functional state of osseous tissue was assessed by means of ultrasound densitometry of calcaneus using a Sahara device (Hologic, USA).

- Serum level of the marker of bony tissue formation – osteocalcin (OC) and the marker of resoption - β-CrossLaps was determined by the immunoenzymatic method using analyzer «Eleksys 2010».

- Blood plasma calcium (Ca) and phosphorus (P) levels were estimated of the spectrophotometer.

- Statistical analysis was done using software package "STATISTICA 7.0". Data presentation corresponded to the character of their distribution: in normal distribution (by Shapiro-Wilk test) the data were expressed as mean values ± standard deviation (M±SD), in non-normal distribution - as median (Me) and interquartile range [LQ-UQ]. In normal distribution for testing the hypothesis about the equality of two group means we used Student t-test (t). In non-normal distribution comparison of two independent groups of the studied variable was done with the help of Mann-Whitney U test. To assess the correlations between the variables we used the Pearson correlation analysis test (r) and nonparametric Spearman's correlation analysis (R).

Results:

Picter 1. Extrapolated index of calcaneal bone mineral density
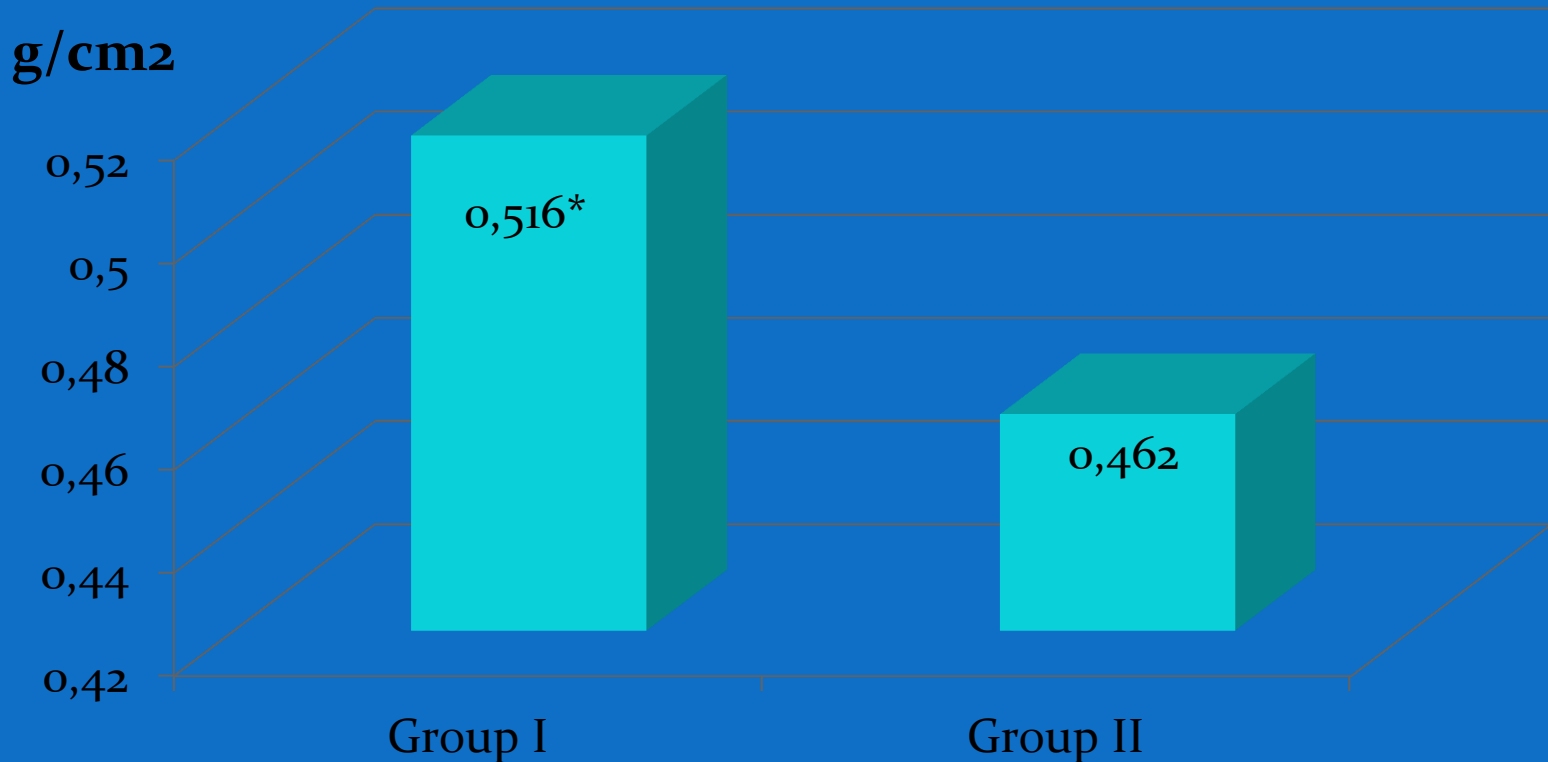
T-score parameter in group II was lower (p<0.05; Chi-Square=9.01) than in group I and was -1.1[–1.8;–0.8]. Parameters of ultrasound densitometry of calcaneus by T-score in group II corresponding to osteopenia were in 59% and corresponding to osteoporosis – only in 7%.

Resulrs:

Parametres	Group I	Group II
Osteocalcin, ng/ml	14.7±5.14	17.03±7.83
β-CrossLaps, ng/ml	0.214[0.182; 0.349]	0.354±0.17
Ca,		
P		

The values of markers of bony metabolism and levels of Ca, P didn't differ between the groups (p>0.05).
There was a strong correlation between OC and β-CrossLaps (R=0.86; p<0.05), in all the subjects their values were either within normal limits or reduced and only one patient had elevated β-CrossLaps.

Conclusion

Thus, in patients with postinfarction cardiosclerosis findings of ultrasound densitometry of [calcaneus](#) by T-score most often evidence osteopenia, rarely osteoporosis. Assessment of the MBM (OC, β-CrossLaps) in cases when T-score parameters correspond to norm and osteopenia is less informative.