Background: Objectives: Assess the severity of coronary atherosclerosis in men with coronary heart disease (CHD) depending on bone mineral density (BMD).

Methods: Two-hundred and two men with confirmed CHD aged 51-75 (50.8 ± 6.9) were examined. All patients performed two-energy X-ray absorption of lumbar vertebral bodies LI-LIV and hip necks (Excell XR-46, Norland, USA) and polyprojector coronangiography (Innova, General Electric, USA). On the basis of results of densitometry on value of T-criterion (the recommendation of ISCD, 2007) estimated BMD condition: normal BMD (T criterion ≥-1), osteopenia (T-criterion from-1 to-2.5) and osteoporosis (T criterion < -2.5). According to the SYNTAX score (www.syntaxscore.com), the following degrees of coronary artery (CA) injury severity were isolated to quantity the expression of atherosclerotic injury: low (22 or less), intermediate (23-32) and high (33 or more). According to the result of multipoint computed tomography of CA, calcium index of vessels was determined by the Agastan method using the CaScore program. On the basis of the calcium index value the degree of coronary calcinosis was evaluated: 0 - absence of calcinosis, 1-10 minimal, 11-100 - moderate, 101-400 - increased, more than 400 - expressed calcinosis.

Results: According to the results of densitometry, patients were found to have 21 patients (20.6%) with normal BMD, 48 (47.0%) - osteopenia and 33 (32.4%) - osteoporosis. Osteoporotic syndrome (OPS) was found in 79.4% of men. All patients tested, depending on the degree of CA calcinosis, were distributed as follows: 57.8% of men had pronounced CA calcinosis, 25.5% - increased, 6.9% - moderate, 2.0% - minimal, 7.8% of patients had no CA calcinosis. In a comparative analysis the degree of coronary calcinosis in men with CHD depending on the T-criterion, it was found that the majority of patients with OPS (69.7% of patients with OP and 60.4% with OPe) had pronounced CA calcinosis. In men with normal BMD, the presence of pronounced CA calcinosis (33.3%) was significantly lower than in patients with OPS (p < 0.050). Calcinosis-negative CA was recorded reliably more frequently in patients with normal BMD (28.6%) compared to men with low BMD (p < 0.050). The results of the work demonstrated the relationship of the studied parameters of coronary atherosclerosis expression with densitometry indicators in men with CHD. Thus, the inverse correlation of the BMD at the level of the hip neck with the number of significant stenoses of the spacecraft (r = -0.19; P = 0.045) and the degree of coronary calcinosis (r = -0.23; P = 0.022) and similar dependence of BMD of vertebral bodies LI-LIV with coronary calcinosis degree (r = -0.19; P=0.046). A direct correlation between CA calcinosis and FRAX hip fracture risk (r = 0.24; P=0.018) was found. Inverse correlation of parameters of atherosclerotic damage of CA (number of significant stenoses and degree of calcinosis) with BMD was established, and direct correlation of CA calcinosis degree with risk of hip fracture on FRAX scale in male persons with CHD over 50 years of age was revealed.

Conclusion: The findings suggest in favor of low common mechanisms for developing atherosclerosis with OP and allow coronary calcinosis to be considered as a condition potentially increasing the risk of hip fracture.

Disclosure of Interests: None declared.

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