

QUASIFRACTAL ORGANISATION OF SPONGY BONE TISSUE OF HUMAN SACRAL VERTEBRAE

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Aim. to study the fractal properties of spongy bone of human sacral vertebrae, to determine the value of its fractal dimension.

Materials and methods. 74 human preparations sacrum were

used in the work. We took samples of spongy bone in the following areas: two blocks from the bodies of SI – SIII and one block from the bodies of SIV – SV. Then each of the blocks were photographed in various projections using Videopresenter Svp-5500. Next, we determined fractal dimension of samples by the method of splitting into squares using IMAGEJ 1.20s. The data were processed using Sheffe's method of multiple comparisons.

Results. The average fractal dimension of spongy tissue is 1.70. Average value of dimension in SI – SIII vertebrae is 1.82, in vertebrae SIV – SV – 1.33. Given that this difference is statistically reliable, we can speak about the tendency of decrease of fractal dimension in the direction from SI to SV.

Conclusions. The tendency to reduce the fractal dimension of spongy tissue bodies sacral vertebrae from SI to SV. This may indicate a facilitation of spatial organization of spongy bone tissue in relation to the reduction of mechanical load on the sacrum in this direction.