

# Bone mineral metabolism disorders in patients with lung injury in the post-COVID period

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**Conflict of interest:** none

**BACKGROUND.** Currently, the treatment of patients who have had coronavirus disease (COVID-19) and have not fully recovered remains an actual issue for practicing physicians. Bone mineral density (BMD) impairment in patients with lung injury in the post-COVID period remains poorly understood.

**OBJECTIVE.** To investigate the bone mineral metabolism disorders in patients with lung injury in the post-COVID period based on chest computed tomography (CT) data.

**MATERIALS AND METHODS.** Densitometry was performed with the use of K-Pacs program. These results were compared with the results of osteoporosis diagnosis based on the standardized program 3D QCT. The dynamics of the chest CT of 21 patients with lung injury in the post-COVID period analyzed retrospectively. Monitoring of the vertebrae structure (Th<sub>12</sub>, L<sub>1</sub>-L<sub>2</sub>) was carried out according to the lowest values of densitometry indicators (mean, minimum and maximum BMD) on axial chest CT slices.

## ОРИГІНАЛЬНЕ ДОСЛІДЖЕННЯ

**RESULTS AND DISCUSSION.** Among patients with lung injury in the post-COVID period predominated persons over 50 years of age. In the studied patients, the average BMD value at the beginning of the observation was below normal ( $148.9 \pm 13.2$ ) HU. In 8 (38.1 %) of patients, the average BMD value was normal, in 9 (42.9 %) it corresponded to osteopenia and in 4 (19.0 %) to osteoporosis. After a year of observation, there was a significant decrease in the average BMD value from ( $148.9 \pm 13.2$ ) HU to ( $129.8 \pm 10.9$ ) HU ( $p < 0.01$ ), and the number of patients with osteoporosis doubled. The obtained data indicate that in the absence of positive dynamics of the pathological process in the lungs, there is a progression of metabolic disorders of the vertebrae in patients with lung injury in the post-COVID period.

**CONCLUSIONS.** In patients with post-COVID syndrome during a year of observation and the absence of positive dynamics of the pathological process in the lungs, it is necessary to use drug therapy for bone mineral metabolism.

**KEY WORDS:** mineral metabolism, osteoporosis, osteopenia, post-COVID syndrome, densitometry, computed tomography.

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