COMPUTED TOMOGRAPHY DENSITOMETRY OF THE LUNGS IN THE ALGORITHM FOR THE DIAGNOSIS OF INTERSTITIAL LUNG DISEASES, INCLUDING OCCUPATIONAL AND ECOLOGICAL DISEASES

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Abstract

Interstitial lung diseases are among the most common diseases of the respiratory system. A significant proportion of them are occupational diseases with pneumoconiosis as the most prevalent condition. Determination of lung density by computed densitometry (CD) allows to quantify the degree of density of lung tissue in a different lung diseases.

This review focuses on world and domestic literature on the application of CD for the diagnosis and monitoring of management of interstitial lung diseases such as pulmonary sarcoidosis, pulmonary tuberculosis, idiopathic pulmonary fibrosis, pulmonary embolism, systemic sclerosis, pneumoconiosis, etc. The method of determining of lung density index, its effectiveness depending on the method of CT and the algorithm of examination of the patients are described. Peculiarities of changes in lung density index depending on the form and pathogenesis of the disease, its correlation with lung function and morphological changes have been analyzed. The most reproducible and perfect indicators of CD are those determined by inspiratory CT, which should be taken into account in the further improvement of research protocols. The standardization of the CT imaging protocol should be implemented taking into account the need for possible reduction of the radiation dose.

Conclusions. The technique of CD is recognized as a revolutionary diagnostic tool for quantifying the density of the lung parenchyma, which can be effectively used to diagnose and verify the diagnosis of interstitial lung diseases, including occupational diseases. Improving methods of occupational and environmental interstitial lung diseases diagnosing, preventing their progression and development of complications will improve the quality of healthcare service for workers, decrease morbidity, reduce treatment and disability reimbursement costs.

Key words: interstitial lung diseases, occupational diseases, computed lung densitometry, computed tomography.