APPLICATION OF COMPUTED DENSITOMETRY FOR MONITORING THE RESULTS OF TREATMENT OF PATIENTS ON MONO- AND POLYRESISTANT LUNG TUBERCULOSIS

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Abstract

Currently, the cessation of bacterial excretion is the main criterion for assessing the effectiveness of treatment. Radiographic criteria are used rarely. Computed tomography (CT) is not yet a standard method of diagnosing and evaluation of treatment efficacy, while computed densitometry is not used in phthisiology at all.

The sensitivity of modern CT is $(95,0 \pm 4,5)$ %, specificity — $(89,0 \pm 6,7)$ %. Based on the determination of tissue density by computed densitometry, it became possible to objectively evaluate the dynamics of lesions, determine the stage of the disease, such as regression, stabilization or progression in order to choose correspondent treatment.

The aim was to study the use of computed densitometry for evaluation of the results of treatment in patients with mono- and multidrug-resistant lung tuberculosis.

Materials and methods. With the purpose of monitoring the treatment results, CT data of 24 patients on mono- and multidrug-resistant pulmonary tuberculosis were analyzed. The patients were examined using Aquilion TSX-101A CT scanner, manufactured by Toshiba (Japan), with the recording of the data on digital media. Patients underwent CT scan at initiation of treatment, at the end of the intensive phase of anti-mycobacterial therapy and at the end of the main course of treatment. The results of the densitometry were compared with those from patients with newly diagnosed lung tuberculosis (NDTB).

Results. It has been established that the densitometry data in patients with mono- and multi-resistant pulmonary tuberculosis are significantly different than in NDTB patients. This makes objective evaluation of treatment outcomes possible.

Computed densitometry performed after completion of the main course of chemotherapy could identify the patients with the active inflammatory process and the risk of relapses in long-term follow-up period.

A detailed analysis of densitometry indicators (mean, minimum, maximum density, standard deviations in density and focal size) allows to assess the state of residual lesions in a remote follow-up period.

Key words: computed tomography, densitometry, tuberculosis, chemo-resistant tuberculosis, mono-multi-resistant tuberculosis, antimycobacterial therapy.

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