Mini Review

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Combined positron emission and computed tomography in study of the metabolism of chronic nephrouropathic diseases

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Diagnosis and therapy of chronic nefrourologic diseases (pyelonephritis, glomerulonephritis, interstitial cystitis and others) is an extremely topical problem in clinical medicine. At the present stage, the only objective way to diagnose them is a biopsy of the kidney or bladder, which allows you to verify the morphology of the disease. Histochemical studies establish a local manifestation of the metabolic disorder that accompanies the disease. To assess the effectiveness of the treatment, repeated puncture of the affected tissues is required. It is known that this is painful and can be accompanied by surgical complications. And what if the patient refuses this procedure, and he needs accurate verification of the disease, the extent of its spread and control over the effectiveness of the treatment?

For more than 10 years we have been analyzing the results of PET/CT examinations in cancer and neurosurgical pathology, but our patients, in addition to the underlying disease, often have concomitant nephrourologic pathology. Their diagnosis was morphologically and did not raise any doubts, while careful study of the metabolism of isotopes of carbohydrate, protein and lipid metabolism in the kidney and bladder on existing tomograms of the whole body performed in the study of the main pathology allowed us to reveal completely fixed patterns characteristic of renal pathology and the bladder coincide with the results of histochemistry. The observation in the dynamics behind these patients confirmed the presence of a reliable correlation of metabolism in these organs and the clinical course of the disease.[1–7]

Further research in this area will allow us to develop and propose PET/CT algorithms for analyzing total and separate metabolism at nephron level and detrusor myocytes in normal manner, implementing nephrourological pathology, and also confirming the effectiveness of ongoing therapy for concomitant diseases at the cellular level.

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Conflict of interest

The author declares that there is no conflict of interest.

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