

RENAL DYSFUNCTION IN NON-ALCOHOLIC FATTY LIVER DISEASE COMORBIDITY WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Abstract: Chronic obstructive pulmonary disease (COPD) and non-alcoholic fatty liver disease (NAFLD) are often coexisting diseases. Their comorbidity is often accompanied by systemic inflammation, oxidative stress, and metabolic disorders. The combination of these diseases can have a negative effect on kidney function and lead to dysfunction. Pathophysiological mechanisms are explained by the increase of inflammatory mediators, increased oxidative stress, hypoxia and metabolic syndrome. This situation worsens the general functional state of the body and increases the risk of developing chronic kidney disease (CKD). Early detection of kidney dysfunction in the comorbidity of CKD and JABBYK and treatment based on a multifactorial approach play an important role in preventing complications.

Key words: Chronic obstructive pulmonary disease (COPD), Non-alcoholic fatty liver disease (NAFLD), Renal dysfunction, Metabolic syndrome, Inflammation and oxidative stress, Comorbidity (multiple organ disorders), Glomerular filtration rate (GFR), Renal failure, Fibrosis and steatosis, Renal biomarkers, Pulmonary hypoxia, Liver-kidney interactions, Combined therapy and management strategies, Cardiorenal syndrome, Inflammatory mediators

The relationship between chronic obstructive pulmonary disease (COPD), non-alcoholic fatty liver disease (NAFLD) and renal dysfunction is multifaceted and complex. The combination of these three diseases has a negative impact on the quality and length of life of patients and increases the difficulty of providing medical care. The pathogenetic mechanisms of these pathologies include a number of common factors — chronic inflammation, oxidative stress, metabolic changes, hypoxia, and vascular dysfunction.

COPD is not only a lung disease, but a systemic disease that affects the whole body, and inflammatory mediators and oxidative stress can damage other organs, especially the liver and kidneys. JABBYOK is an important component of metabolic syndrome and obesity, which can reduce the filtration capacity of the kidneys and lead to the development of nephropathy. The combined effect of these two diseases on the kidneys significantly increases the risk of chronic kidney disease.

The main clinical problems associated with these comorbid conditions are:

1. Difficulty in early diagnosis: symptoms of COPD hide pathologies of other organs or lead to misinterpretation.
2. Complex pathophysiology of the disease: It is difficult to fully understand the mechanisms connecting this trio.
3. The importance of individualized treatment: In each case, treatment should be planned taking into account the general condition of the patient, the degree of damage to other organs and comorbid conditions.

In this article, the clinical, pathophysiological and diagnostic aspects of CKD and CKD related to kidney dysfunction are analyzed in depth. Also, the latest scientific approaches to understanding their joint pathogenetic processes and developing treatment strategies will be covered. This, in turn, serves to improve the clinical management of these complex comorbid conditions.

The relationships between chronic obstructive pulmonary disease (COPD), non-alcoholic fatty liver disease (NAFLD) and renal dysfunction require further understanding. Together, these conditions can increase systemic pathological processes. The following factors can also be considered:

1. Systemic inflammation: COPD and NAFLD initiate inflammatory processes not only in organs, but throughout the body. Increased inflammation can lead to microvascular changes in the kidneys. Liver and lung diseases and the inflammation associated with them can lead to deterioration of kidney function.
2. Oxidative stress and microthrombosis: Diseases such as COPD and NAFLD increase oxidative stress. This stress causes damage to the liver and lung tissue, causing an increase in inflammatory factors (such as C-reactive protein) in the blood. Oxidative stress and microthrombosis can also damage the renal microvasculature.
3. Hypoxia and hemodynamic changes: Hypoxia and cardiovascular disease associated with lung disease can not only impair renal blood flow, but also decrease renal filtration. This condition can develop especially in patients with COPD.
4. Cardiovascular diseases: COPD and NAFLD often occur together with cardiovascular diseases. Cardiovascular risk factors such as hypertension, dyslipidemia, and diabetes can damage not only the lungs and liver, but also the kidneys. This affects all organ systems at the same time and leads to deterioration.
5. Systemic metabolic syndrome: NAFLD and COPD can present as part of systemic metabolic syndrome. In this syndrome, insulin resistance, high blood fats and inflammatory factors can lead to kidney dysfunction. Metabolic syndrome affects the liver and lungs together.
6. Medications and Treatment: Medications used to treat COPD, NAFLD, and kidney disease may interact. For example, some medications (such as diuretics) support

kidney function, while others (such as corticosteroids) can increase inflammation and further damage the liver.

Therefore, it is necessary to treat these cases with a complex and individual approach. In systemic treatment, it is important to take into account the interaction of the liver, lung and kidney systems.

Conclusion: The patient has chronic obstructive pulmonary disease, non-alcoholic fatty liver disease and renal dysfunction. All these diseases can affect each other, which poses a serious threat to the general health of the patient. While chronic obstructive pulmonary disease makes breathing difficult, fatty liver disease can impair liver function. And kidney dysfunction reduces kidney function, which reduces the body's ability to excrete toxins. It is necessary to treat these conditions in a complex way, and each disease requires a separate approach and a balanced therapy. It is also important for the patient to maintain a healthy lifestyle and monitor diseases.

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