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CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND CHRONIC RENAL FAILURE

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Introduction

Chronic obstructive pulmonary disease (COPD) and chronic kidney disease (CKD) are two conditions that often coexist in patients, which can greatly complicate their diagnosis and treatment. The combination of these diseases requires special attention to clinical manifestations and laboratory tests aimed at identifying and assessing the condition of the kidneys. Chronic obstructive pulmonary disease (COPD) and chronic kidney disease (CKD) are conditions that are not only highly prevalent but also have serious health consequences for patients. COPD is characterized by obstructions in the airways, leading to difficulty breathing, while CKD is a gradual loss of kidney function, which can lead to the accumulation of toxic substances in the body. Knowing how these two conditions are interrelated helps doctors diagnose and treat patients more effectively.

Epidemiology

COPD is one of the leading causes of temporary disability in the world. According to the World Health Organization (WHO), the incidence of COPD varies by region and ranges from 4% to 10% of the adult population. According to the World Health Organization (WHO), COPD is one of the leading causes of death in the world, ranking sixth in this indicator. This disease affects millions of people and is considered an epidemic in most developing countries. CRF, in turn, affects more than 10% of the adult population, and this number continues to grow. Both diseases are especially common among older people, and their concomitant presence significantly increases the risk of cardiovascular disease.

The main risk factors for COPD include:

• Smoking (the most significant reason).
• Exposure to inhaled pollutants (e.g. dust in production).
• Hereditary factors (eg, alpha-1 anti- tripsin deficiency).
• Age (incidence increases with age).
• Gender (men are more likely to suffer from COPD, although the incidence also increases among women, especially among smokers).

In recent decades, there has been an increase in the incidence of the disease in developing countries, which is associated with an increase in smoking and deterioration of the environmental situation. In developed countries, due to preventive measures such as the fight against smoking and improving the quality of life, there has been a slight decrease.

Pathophysiology

COPD: The underlying mechanisms that lead to COPD include chronic inflammation and damage to the lung tissue due to factors such as smoking, air pollution, and occupational hazards. This inflammation leads to changes in the structure of the lung tissue as well as airway obstruction, which impairs lung ventilation and reduces respiratory function. CRF: The underlying process in CRF is a progressive decline in the functional capacity of the kidneys. This occurs as a result of various pathologies such as diabetes mellitus, hypertension, and glomerulonephritis . CRF may occur as a consequence of hypovolemia , urinary tract obstruction, or renal parenchymal diseases, which lead to impaired excretion of toxins and electrolytes.

Relationship between COPD and CRF

Common risk factors: Both diseases share common risk factors such as smoking, hypertension, diabetes, and age. These factors can worsen both conditions, making patients vulnerable. For example, smoking is a known risk factor for both COPD and CRF.
Increased morbidity: Studies show that having one of the diseases increases the risk of developing the other. Patients with COPD often have higher creatinine levels and lower glomerular filtration rate, indicating the onset of kidney failure. On the other hand, CRF can worsen respiratory function, making treatment successful but challenging.
Clinical manifestations and diagnostics
COPD: Clinical manifestations include dyspnea, difficulty breathing, chronic cough with sputum production. Spirometry is usually performed to diagnose COPD, which shows the limitation of airflow and the degree of obstruction.
CRF: The main symptoms of CRF include fatigue, swelling, anemia, and electrolyte imbalances. Diagnosis is made using blood creatinine levels and urine analysis, as well as monitoring of the glomerular filtration rate (GFR).
To diagnose CRF in patients with COPD, the following laboratory tests are needed:
Creatinine level measurement : This can be a key indicator of kidney function. Creatinine level allows to estimate the glomerular filtration rate (GFR), which is a key parameter in the diagnosis of CRF.
• Urinalysis: Urine tests can help detect albuminuria and other abnormal components that may indicate kidney disease.
• Electrolytes and acid-base balance: Measurement of electrolyte levels (eg, potassium and sodium) helps assess metabolic disturbances associated with renal failure.
4. Instrumental methods
Additional instrumental methods can help in the diagnosis and assessment of the kidney condition in patients with COPD:
• Ultrasound of the kidneys: allows you to assess the structure and size of the kidneys, as well as exclude anatomical abnormalities.
• CT or MRI: may be used in complex cases to assess the condition of the kidneys in more detail.
Diagnosis of chronic renal failure in patients with chronic obstructive pulmonary disease is a complex process requiring attention to clinical symptoms and extensive laboratory testing. Timely detection and treatment of CRF can significantly improve the outcomes and quality of life of these patients, which emphasizes the importance of a multidisciplinary approach in the management of such patients.
Treatment. Treatment of CRF in patients with COPD should be comprehensive and individualized. It includes control of risk factors (e.g., smoking cessation), correction of metabolic disorders, and support of renal function. Monitoring of the condition of both organs is necessary to minimize complications and improve the quality of life of patients.
COPD: Treatment includes smoking cessation, bronchodilators , corticosteroids, and oxygen therapy when needed. Pulmonary rehabilitation and education programs can also significantly improve a patient's quality of life.
CRF: Primary treatment focuses on managing the underlying causes of the disease, such as lowering blood pressure and controlling glucose levels. In severe cases, dialysis or a kidney transplant may be needed. Diet therapy and exercise may also help improve the patient's condition.
Conclusion
COPD and CRF are serious diseases that require a comprehensive approach to diagnosis and management. It is important to understand their relationship in order to provide patients with quality treatment and improve their quality of life. Research aimed at identifying the mechanisms of interaction and the possibility of developing new therapeutic strategies remains relevant in

modern medicine. Early detection and a multidisciplinary approach to treatment can significantly improve the outcomes for patients with these diseases.

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