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PATHOGENESIS AND TREATMENT OF ALCOHOLIC NEPHROPATHY

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Annotation: is a chronic inflammatory kidney disease based on autoimmune mechanisms induced by exposure to ethyl alcohol and its metabolites. The severity of symptoms depends on the type of pathology, asymptomatic course prevails until the development of signs of chronic renal failure, in some forms progressive hematuria and hypertension are observed. The diagnosis of alcoholic nephropathy is based on the data of physical examination, laboratory and functional studies. Treatment includes a ban on alcoholic beverages and symptomatic therapy.

Key words: : alcoholic nephropathy, chronic inflammatory kidney disease.

Alcoholic nephropathy is also known as hepatic glomerulopathy, alcoholic chronic glomerulonephritis (AHGN), or alcoholic IgA nephritis. Synonymous names reflect the main stages of the pathogenesis of the disease, including the involvement of other organs (liver) and the autoimmune mechanism of kidney damage involving class A immunoglobulins. The spread of AHGN is directly correlated with the level of consumption of alcohol-containing products in various regions of the planet. The exact statistics are unknown due to the relatively small number of people who go to the doctor (the reason for this is a long-term asymptomatic course). Accounting for such patients is complicated by the fact that alcoholic nephropathy is often part of a symptom complex called "alcoholic disease".

Reasons

There are several basic theories of the development of alcoholic nephropathy, there are no reliable and unambiguous data in favor of any of them yet. The reasons for the lack of consensus are the diverse clinical and morphological manifestations of alcoholic nephropathy, which suggests the presence of several mechanisms of damage to the urinary system. The range of opinions regarding the nature of the disease is quite wide – from statements that nephropathy is part of an alcoholic disease to proposals to divide AN into several pathologies similar in course with different etiologies. The most recognized theories of the development of this condition in modern urology are the following:

Immunological reasons. There are a number of immunological mechanisms of kidney tissue damage that may be associated with alcohol intoxication. First of all, it is sensitization to the antigens of alcoholic hyaline with the release of immunoglobulins A, which can damage the membranes of nephrons. A similar mechanism is the direct cytotoxic effect of ethanol and its metabolic products by stimulating the release of cytokines.

Infectious causes. Some researchers believe that alcohol reduces the body's defense against infections, including the hepatitis C virus and some bacteria (E. coli). As a result, along with the direct effect of infectious agents on various target organs, indirect kidney damage occurs.

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Systemic reasons. Ethanol is a systemic poison, with prolonged use it provokes an increase in blood pressure, damage to the liver, gastrointestinal tract, pancreas, metabolic disorders (abnormalities of purine metabolism). It is believed that these factors play a decisive role in the pathogenesis of alcoholic nephropathy.

Modern researchers tend to believe that the development of AHGN has a multifactorial nature, all of the above processes are more or less involved in the pathogenesis. The role of genetic predisposition is unknown, although the presence of a wide range of individual characteristics of the disease indicates its presence. Risk factors may include previously suffered kidney pathologies, diabetes mellitus, and hypertension, but in such cases it is extremely difficult to differentiate alcoholic glomerulonephritis from forms of secondary nephropathy of another type.

Pathogenesis

The mechanism of development of alcoholic nephropathy is very complex due to the multiplicity of pathogenetic factors, the influence of each of which varies greatly from patient to patient. This is what gives some researchers reason to believe that AHGN is only an integral part of the symptom complex of alcoholic illness. Almost all patients have IgA antibodies against nephron components, which indicates an autoimmune mechanism of pathogenesis. When taking large doses of ethanol, the latter can directly stimulate the release of cytokines in the kidneys, which leads to the destruction of nephrons.

With the systematic use of alcohol, ethanol metabolites cause damage to the liver, nervous system, pancreas, and vessels of the microcirculatory bed. This indirectly increases the damage to the organs of the urinary system. An increase in blood pressure, typical for chronic alcoholism, can in itself lead to secondary nephropathy. Metabolic failures, especially purine metabolism, increase the load on the excretory organs and also lead to a violation of their functions up to chronic insufficiency. The severity and rate of development of AHGN manifestations depends on the amount of alcohol consumed – a critical dosage is considered to be over 35 ml per day.

Classification

There are several forms of alcoholic nephropathy, the difference between them lies in the clinical course, the presence or absence of concomitant diseases. Some types of the condition are quite easily confused with other types of secondary nephropathy due to similar manifestations and pathogenesis mechanisms. A distinctive feature of AHGN is the fact that the root cause of all pathological changes in the body, directly or indirectly impairing kidney function, is alcohol abuse. The existence of the following types of disease is generally recognized:

The latent form. It is the most common and difficult to diagnose due to the almost complete absence of subjective symptoms. It occurs not only in people who constantly consume alcoholic beverages, but also in those who do it with a certain frequency (1-2 times a week). Exacerbations are characteristic shortly after the last alcohol intake, manifested by a decrease in the functional

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activity of the kidneys, which is confirmed by laboratory studies. The pathogenesis is dominated by the role of direct nephrotoxic effects of ethanol.

The hypertensive form. A rarer type of pathology, mainly occurring in people suffering from alcoholism, obesity and hypertension. The latter circumstance makes it difficult to distinguish between this type of AHGN and secondary hypertensive nephropathy. Damage to nephrons occurs with the development of hemodynamic and metabolic disorders, tubular acidosis.

The nephrotic form. It is an extremely rare and most severe form of chronic alcoholic nephropathy. It is accompanied by progressive diffuse glomerulonephritis, which quickly leads to chronic kidney disease. The main link in pathogenesis is a sharp sensitization of the body and autoimmune tissue damage by immunoglobulins A.

Some authors classify acute conditions as alcoholic nephropathy, for example, acute renal failure due to alcohol poisoning. Despite the fact that the direct nephrotoxic activity of ethanol is most pronounced in this case, acute renal failure with alcohol intoxication differs in its mechanism of development from other kidney damage on the background of AHGN. Therefore, most specialists do not consider such a condition as classical nephropathy.

Symptoms of alcoholic nephropathy

In most cases, the disease is almost asymptomatic, manifestations of pathology are recorded accidentally when performing laboratory tests for a different reason. This is especially typical for the latent form – often the asymptomatic course can last for many years. Exacerbations that occur 1-3 days after the use of ethanol can manifest themselves only with complaints of a decrease in urine volume (oliguria) and extremely rarely with mild pulling pains in the lower back. With a prolonged course, manifestations of alcoholic illness come to the fore: erythema of the palms, gynecomastia in men, symptoms of pancreatic and liver damage (pain in the hypochondrium and abdomen, jaundice).

The hypertensive variant of alcoholic nephropathy at the initial stages of development is also characterized by a weak severity of the actual nephrogenic symptoms. The patient complains of headaches, flushes of blood to the face, unpleasant sensations in the heart area and other consequences of increased blood pressure. This type of disease is often accompanied by obesity. For the nephrotic form of AHGN, a fairly rapid course is typical – usually after an excess, oliguria, visible hematuria, and deterioration of the general condition occur. There are necessarily extrarenal manifestations of chronic ethanol intoxication.

In the absence of therapeutic measures and the continued intake of ethyl alcohol into the body, alcoholic nephropathy invariably reduces to the occurrence of CRF. Its signs are fatigue, a broken state, headache, which worsen after taking ethyl alcohol. Then there is an ammonia smell from the mouth, intense thirst, vomiting, dry skin, inflammation of the mucous membranes. The amount of urine excreted decreases sharply, a whitish plaque forms on the surface of the skin

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from the urea secreted by the sweat glands.

Complications

It is not always possible to strictly differentiate the complications of alcoholic nephropathy proper and intoxication with ethyl alcohol. With AHGN, alcohol poisoning occurs much more easily, accompanied by acute renal failure with anuria, headache, vomiting, edema and other signs of uremia. Given the progressive nature of the condition, previously habitual dosages of alcohol can lead to acute poisoning, which increases the risk of complications. A formidable and unfavorable complication may be uremic coma caused by intoxication with metabolic products not excreted through the kidneys.

Diagnostics

Methods of physical examination, a number of laboratory tests and instrumental studies are used to diagnose alcoholic nephropathy. A consultation with a nephrologist is necessary, sometimes a narcologist may be involved in determining the condition. Usually, the AHGN diagnostic algorithm includes the following steps:

Questioning and anamnesis collection. The degree of dependence of the patient on alcohol is determined (which directly correlates with the severity of kidney damage), the duration of abuse and its nature (constant or periodic "binge" consumption). It is important to clarify the prescription of the last excess and the approximate amount of ethyl alcohol consumed.

Physical examination. Special attention is paid to the extrarenal signs of alcoholism: erythema of the palms, darkening of the skin, enlargement of the liver, gynecomastia in men. In some cases, increased blood pressure and obesity are detected. The detection of ammonia odor from the mouth, an unpleasant "urinary" smell of sweat, dry skin, white plaque on it indicate the development of CRF and uremia.

Laboratory research methods. It is often a general urine test performed on another occasion that reveals the presence of alcoholic nephropathy. Its results in AHGN are microhematuria and moderate proteinuria, the indicators of which increase after drinking alcohol. In addition to OAM, biochemical blood tests, functional renal tests (Rehberg, Zimnitsky test) are used to diagnose the condition, indicating a decrease in glomerular filtration (decrease in creatinine clearance to 30 ml / min or less, oliguria).

Ultrasound diagnostics. To determine the condition, ultrasound of the kidneys and dopplerography (UZDG) of the renal vessels are prescribed. A simple ultrasound examination reveals a decrease in the size of the kidneys, a decrease in the thickness of the parenchyma. Dopplerography confirms a decrease in renal blood flow correlated with the severity of nephropathy. Additionally, ultrasound of other organs (pancreas, ureters, liver) can be performed to assess their condition.

In rare and controversial cases, liver and kidney biopsies are performed for histological examination of these organs. With alcoholic nephropathy, signs of hyaline drip dystrophy will be

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detected in the liver, and diffuse or focal mesangioproliferative nephritis in the kidneys. Radiopaque methods of examination (for example, urography) are prescribed with caution due to the nephrotoxicity of most contrast agents. Differential diagnosis is carried out with other types of primary and secondary nephropathies, the determining factor is often the fact of long-term alcohol abuse.

Treatment of alcoholic nephropathy

The main and fundamental purpose is a complete ban on the consumption of alcoholic beverages. Only after abstaining from alcohol, more than half of patients with latent alcoholic nephropathy have a steady improvement in laboratory urine parameters and almost complete remission. Failure to comply with this prescription, even when following other recommendations and therapeutic measures, only slightly slows down the progression of the condition. In advanced cases of AHGN and the presence of concomitant pathologies, in addition to abstaining from alcoholic beverages, a number of auxiliary therapeutic measures are prescribed:

Antihypertensive therapy. Lowering blood pressure has a beneficial effect on the prognosis due to the elimination of hemodynamic disorders in the kidneys. This component of treatment is especially important for hypertensive forms of nephropathy. In case of disorders of the excretory system, ACE inhibitors, calcium channel blockers and angiotensin 2 receptors are used to reduce pressure.

Normalization of metabolism. The consequence of alcohol intoxication is often metabolic disorders: purines, carbohydrates, fats. Through special diets, it is necessary to normalize metabolism and reduce the load on the excretory system. A violation of purine secretion is especially detrimental to the kidneys, therefore, if the effectiveness of dietary nutrition is insufficient, antipodagric drugs (allopurinol) may be prescribed.

Anti-inflammatory drugs. With rapid progression of the condition (nephrotic form), corticosteroid and cytostatic drugs are used. The purpose of their use is to reduce the activity of inflammatory processes to reduce the degree of kidney damage. To date, their effectiveness has been criticized by a number of researchers.

When diagnosing CRF, hemodialysis is recommended, the frequency of which depends on the degree of damage to the excretory system. A narcologist can play an auxiliary role in the treatment of alcoholic nephropathy - with his help, it is easier for the patient to get rid of addiction. The use of pharmacological agents in the fight against alcoholism should be carried out taking into account the reduced glomerular filtration rate.

Prognosis and prevention

In the case of strict observance of the prohibition on alcohol intake and early detection of a pathological condition, the prognosis of alcoholic nephropathy is almost always favorable – the functions of the excretory system are restored almost in full. In the presence of concomitant disorders caused by the abuse of alcohol-containing products, the outcome of the pathology depends on their quality treatment. With CRF, restoration of normal kidney function is almost

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always impossible, but supportive treatment can maintain an acceptable quality of life for the patient for many more years. The most unfavorable prognosis is a combination of AHGN and severe manifestations of alcoholic disease: cirrhosis of the liver, alcoholic pancreatitis, cardiomyopathy. But even in this case, long-term complex treatment can significantly improve the patient's condition.

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