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Pathophysiology of Kidney Diseases: CKF (Chronic Kidney Failure), Characteristics in Children

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Abstract: In this article, chronic kidney failure and its features that can be encountered in children are described in detail, and the recommended treatment method for diagnosing the symptoms of this disease is described around the world.

Keywords: kidney, human organism, chronic kidney failure, children's psychology, etc.

Treatment of the acute form of kidney failure begins with identifying the cause of the development of the pathological condition - it is not an independent disease, but a complication of existing diseases. In order to quickly get rid of the factors that cause acute kidney failure, doctors can take different measures depending on the disease: eliminate blood loss, restore normal heart function, and administer blood substitutes intravenously. If there are mechanical obstacles to the flow of urine, they are removed only by surgery - for example, ureteral catheterization, nephrostomy. In the course of treatment, first of all, it is necessary to restore urine production; for this, diuretics and special solutions are used through a certain tool in a fixed dose. Treatment of the acute form of kidney failure also involves the use of drugs that improve microcirculation in the kidneys, activate metabolism and restore their activity. Emergency medical care for acute kidney failure is to eliminate acute events, which can also occur as a result of poisoning or some drugs. In this case, it is important to quickly carry out detoxification measures - it is necessary to wash the stomach, enter a large amount of sorbents into the digestive system, and use antidotes. Doctors can also give the patient hemodialysis or hemosorption — in most cases, these methods of emergency care are the patient's only chance for survival.

This syndrome never appears "by itself", it is a complication of almost all kidney diseases. Symptoms differ in acute and chronic infertility. For example, in chronic form, it is characterized by swelling and pain syndrome located in the lumbar region. symptoms are not strong, so they are often ignored by patients. The main problem in the diagnosis of chronic kidney failure in children is that parents may not notice a decrease in urine output and mild pain. These symptoms can be accompanied by general weakness, increased fatigue, insomnia - these symptoms are not specific, so it is impossible to make a correct diagnosis based on them alone; a full investigation is required. The doctor decides how to treat chronic kidney failure in each case - it is necessary to analyze the patient's condition, identify all obvious and hidden diseases, exclude HIV and conduct a thorough examination. In particularly severe cases, the patient may be prescribed hemodialysis - this sometimes increases the chance of survival. This disease is considered dangerous, therefore, after diagnosis, patients are registered immediately - they need to be regularly examined by specialists, and from time to time they need to be in the hospital for treatment. The pathogenesis of chronic

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kidney failure is such that it is impossible to know exactly how to respond to the question of drug treatment - everything is very individual. The result and treatment depends on the type of pathology that caused this condition. Patients with severe kidney failure can undergo organ transplantation. Sometimes transplantation is the only chance for survival, patients live more than 10 years after the operation. Chronic renal failure (CRF) is a gradual deterioration in kidney function over a long period of time. In modern literature, the term "chronic kidney disease" is found, which has a somewhat broader meaning and implies a decrease in kidney function for three months or more. The function of the kidneys is to maintain a normal balance of fluid and salts in the body, as well as to remove the products of protein metabolism (nitrogenous slags) from the body, forming urine. With CRF, blood purification does not occur sufficiently, which over time can lead to serious complications. In the early stages of chronic kidney disease, there may be no symptoms. The disease is often discovered when kidney function deteriorates significantly. It is very important to establish the diagnosis of "CKD" as early as possible in order to start treatment in time, which will slow the rate of decline in kidney function, since long-term kidney damage is irreversible. Without treatment, kidney function may deteriorate critically, which may require hemodialysis (artificial blood purification using an artificial kidney machine). Chronic renal failure is a condition characterized by a gradual deterioration in kidney function over several months or years. CKD is an important medical problem. Millions of people around the world suffer from this disease, and the number of cases is steadily increasing every year. There are 300-500 patients with chronic renal failure per million adults. The kidneys are the main organ of the human excretory system. Normally, they maintain the ratio of water, active substances in the body, regulate the volume and composition of blood plasma. In addition, they produce a number of hormones - biologically active molecules. Blood filtration in the kidneys is carried out due to the functioning of the renal glomeruli. Each kidney contains a million glomeruli. Each renal glomerulus is a plexus of capillaries, in the form of a glomerulus surrounded by a capsule. Passing through the glomeruli, the liquid part of the blood is filtered, after which the primary urine is formed. The glomeruli normally pass only the liquid part of the blood - proteins and other large molecules do not pass through the kidneys. Next, the primary urine enters the renal tubules - thin tubes in the kidneys. In the renal tubules, most of this fluid is reabsorbed (this process is called reabsorption), and a small part in the form of urine enters the renal pelvis, and then into the ureter and into the bladder. When enough urine accumulates in the bladder, it is expelled from the body during urination. During the day, about 150 liters of fluid passes through the kidneys, from which 1.5-2 liters of urine is formed. This is how the composition and volume of plasma is regulated.

In chronic renal failure, due to various reasons, the renal tissue is replaced by scar tissue, the structure of the kidneys changes, the area of tissue decreases, as a result of which the volume of filtered blood gradually decreases. At the same time, the remaining glomeruli and tubules hypertrophy, enhancing their function to compensate for this condition. The loss of 75% of kidney tissue results in only a 50% reduction in blood filtration volume. As a result, the volume of blood filtration decreases, the ratio of water and salts (electrolytes) is disturbed in the body, which is manifested by nausea, vomiting, muscle twitching, fluid accumulates in the tissues, which is manifested by edema, shortness of breath (due to accumulation of fluid in the lungs). The density of urine decreases, it becomes lighter, the patient begins to be disturbed by frequent nighttime urination. Over time, the concentration in the blood of nitrogenous wastes (urea and creatinine) - the main end products of protein metabolism - increases significantly, which is only a sign of deterioration in kidney function, but does not show any symptoms. An increase in urea leads to nausea, abdominal pain, and headache. Other nitrogenous slags lead to persistent skin itching.

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