

STUDY OF PRACTICAL DIETARY RECOMMENDATIONS FOR KIDNEY DISEASES IN INFANTS

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Abstract. *Nutrition of infants with chronic kidney disease is of paramount importance to solve the problem of maintaining further normal growth and development. This concerns the assessment of nutrition, energy and protein requirements, the issuance of a prescription for nutrition and the necessary dietary modifications in case of abnormal levels of calcium, phosphate and potassium in serum. The frequency of various kidney diseases in infants has remained high over the past decades. The appointment of adequate diet therapy makes it possible to increase the effectiveness of drug treatment, reduce the frequency of relapses and prevent the progression of the disease. The article is devoted to modern approaches to diet therapy for various kidney diseases in children - with lesions of the tubular and glomerular apparatus.*

Keywords: *chronic kidney disease, proteins, carbohydrates, breast milk, diet therapy, infants.*

In the complex treatment of acute and chronic kidney diseases in children, diet therapy occupies an important place. High demands are placed on therapeutic nutrition, since the kidney is the main organ for the excretion of metabolic products coming from food and formed as a result of the breakdown of body tissues, as well as the organ responsible for maintaining the constancy of the internal environment. We pay special attention to the special nutritional needs of infants with kidney diseases, for whom nutritional recommendations for energy and protein, depending on body weight, are higher compared to children over 1 years old, in order to maintain both linear growth and brain growth, which are usually maximum in the first 6 months of life. Attention to nutrition in infancy is very important because growth mainly depends on nutrition in the infant phase, and the growth of infants can slow down dramatically due to a violation of their nutrition, especially during the first 6 months. Inadequate food intake can lead to the inability to achieve the full growth potential of an adult and an increased risk of abnormal development of the nervous system. We strongly recommend that doctors work closely with pediatric kidney nutritionists to ensure that a child with chronic kidney disease receives the best possible nutrition to optimize his growth and development. higher compared to children over 1 years old to maintain both linear growth and brain growth, which are normally maximal in the first 6 months of life. Attention to nutrition in infancy is important, given that growth mainly depends on nutrition in the infant phase, and the growth of infants slows down sharply due to a violation of their nutrition, especially during the first 6 months. Inadequate food intake can lead to the inability to achieve the full growth potential of an adult and an increased risk of abnormal development of the nervous system. We strongly recommend that doctors discuss with moms to ensure that a child with kidney failure receives the best possible nutrition to optimize his growth

and development. higher compared to children over 1 years old to maintain both linear growth and brain growth, which are normally maximal in the first 6 months of life. Attention to nutrition in infancy is important, given that growth mainly depends on nutrition in the infant phase, and the growth of infants slows down sharply due to a violation of their nutrition, especially during the first 6 months. Little is known about the needs of children with CKD in vitamins, minerals and trace elements. 100% of the recommended dietary intake for healthy children with supplements, if dietary intake alone is not enough; plus a water-soluble vitamin supplement for patients with kidney diseases. Vitamin A is an exception, since an increase in retinol levels has been reported in infants and children with kidney diseases, even without supplements, with concomitant development. These high levels of circulating retinol may be the result of decreased glomerular filtration of the retinol-retinol-binding protein complex; decreased conversion of retinol to retinoic acid; and accumulation of retinol-binding protein. Vitamin D deficiency is common in CKD, and the assessment, prevention, and treatment of vitamin D deficiency are complex.

Breastfeeding is the preferred method of feeding a baby, which is recommended for a healthy population. Infants can benefit from its low load of dissolved substances on the kidneys, especially with regard to the low content of phosphates and potassium. Mothers who want to breastfeed should be supported by all members of the medical and nursing teams. Breastfed newborns need to be fed every 2-3 hours to deliver enough nutrients to maintain normal growth. There are many reasons for poor growth in young children with chronic kidney disease. One of the most important of them is malnutrition. Ensuring adequate nutrition is important, especially in the infant growth phase, when growth is predominantly dependent on nutrition. Inadequate food intake may be associated with anorexia, which is common in CKD. The consequences of poor nutrition in infancy are suboptimal growth and impaired achievement of the final growth potential, abnormal body composition, developmental delay, worsening of uremic symptoms such as vomiting, loss of protein energy and increased mortality. This period of alimentary vulnerability can be extended in CKD, since the infant growth phase can last from birth to 2-3 years. The usual diet contains various vital proteins, fats, carbohydrates, vitamins, trace elements, electrolytes. The lack of any of them can lead to illness. And with chronic renal failure, there is a spontaneous decrease in food intake, especially protein products, associated with a decrease in appetite. In addition, with the deterioration of the kidneys, damage to the stomach and intestines develops (enteropathy, gastritis, ulcer), the absorption of substances necessary for the body (proteins, vitamins, trace elements) is disrupted. If you do not change the diet, it is fraught with protein-energy deficiency (weight loss, reduction in the thickness of subcutaneous fat, muscle weakness, damage to internal organs), and as a result, further progression of the disease. The appearance of hyperphosphatemia and secondary hyperparathyroidism in chronic renal failure is an indication for the appointment of phosphate binders (calcium carbonate, calcium acetate, sevelamer carbonate, sevelamer hydrochloride, etc.) and the restriction of protein in the diet as the main source of phosphates. In order to increase the therapeutic effect, phosphate binders are recommended to be taken with meals. At the same time, it is necessary to control the occurrence of hypercalcemia, since most of these drugs contain calcium.

In a diet with a protein restriction of up to 0.6 g/ kg of body weight, at least 60% should be animal protein (meat, chickens, eggs, cheese, milk) as the most complete in terms of the

content of essential amino acids. Vegetable protein has less biological value because it does not contain the entire composition of essential amino acids. The exception is soy protein, which is close to animal protein in terms of the spectrum of essential amino acids. The addition of essential (essential) amino acids and their ketoanalogs to a low-protein diet allows you to maintain protein balance. Fat—soluble vitamins are prescribed selectively: active forms of vitamin y are shown, since this vitamin is usually activated by the kidneys; at the same time, patients with stage III-V CKD are not recommended to prescribe vitamin A, since its level can be increased in kidney diseases up to toxic. The presence of edema and arterial hypertension in a child requires strict restriction in the diet of table salt. In the absence of edema and arterial hypertension in the child, but in the presence of stable hyperazotemia, in order to improve kidney function, it is recommended to dose table salt up to 1-3 g/day (depending on the age of the child). For this purpose, salty products are used, such as soaked herring, lightly salted cucumbers or tomatoes. Therapeutic nutrition in children with glomerular kidney diseases is prescribed for a long time for the entire active period of the disease, its expansion is carried out when a long-term clinical and laboratory remission is obtained, and in some cases (if there is only residual proteinuria), it is possible to expand the diet already at the stage of persistent partial clinical and laboratory remission. Against the background of the expansion of the diet, strict control is carried out over the amount of blood pressure, the presence of edema, blood and urine indicators. In case of deterioration of the child's well-being and the appearance of even small changes in blood or urine tests, it is necessary to stop expanding the diet and return to strict dietary nutrition.

Pathogenetically based therapeutic nutrition used in children with various kidney diseases can increase the effectiveness of drug therapy, slow down the progression of the disease, delay the timing of its transfer to hemodialysis and kidney transplantation. Acute renal failure is manifested by a sudden violation of the basic functions of the kidneys, leading to hyperazotemia, acidosis, electrolyte disorders, oliguria or anuria. Acute renal hemodynamic disorders (collapse, shock), intoxication of various genesis (medications, insect and snake bites, household poisons), infectious diseases, acute kidney diseases (pyelonephritis, acute glomerulonephritis), kidney injury, urinary tract obstruction, leading to obstructed urine outflow can cause kidney failure in the acute form of the disease from the kidneys. The purpose of diet therapy for infants with diseases is to provide the child with an adequate supply of protein and energy, control the level of potassium, sodium and phosphates in the diet, and maintain an optimal fluid balance. Taking into account the above factors, a therapeutic diet made up of natural foods is not able to fully provide a child with tubulopathy with a sufficient amount of calcium. The most effective and affordable way to enrich the diet of children with tubular osteopathy with well-digested calcium is to include in therapeutic diets specialized milk mixtures for enteral nutrition, which are enriched with high-grade protein and contain sufficient amounts of calcium and phosphorus in an optimal ratio.

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