



THE IMPORTANCE OF DETERMINING THE NUTRITIONAL STATUS IN LIVER DISEASES

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The liver plays a crucial role in modulating the physical states of nutrients, which is significant in digestive processes. In this process, fats are emulsified with the help of bile acids and phospholipids. The absorption and utilization of cholesterol and fat-soluble vitamins are closely related to the functional status of the liver. In liver insufficiency, defects arise in the transport of fatty acids, the structure of lipoproteins, and the clearance of fatty acids from peripheral tissues. In the early stages of fasting, glucose levels are regulated by gluconeogenesis. In normally nourished patients, glycogen is stored for approximately 24 to 48 hours, but after this time, due to the lack of necessary nutrients, glucose is formed only through gluconeogenesis.

The nitrogen products resulting from gluconeogenesis are converted into urea in the liver through detoxification. As a result, in liver insufficiency, the detoxification of nitrogen residues from amino acids becomes disturbed, and the levels of glutamine, ammonia, and aromatic amino acids in the blood increase. These changes are typical for liver insufficiency, underscoring the importance of protein and amino acid intake in nutrition. In patients with liver cirrhosis, a link has been established between the clearance of aromatic amino acids and hepatic encephalopathy as well as nitrogen-storing nutrition. The accumulation of aromatic amino acids in the blood is primarily associated with protein destruction. Therefore, nutrition should primarily aim to slow down protein catabolism. In patients with liver cirrhosis, energy expenditure at rest may be high, normal, or decreased. Hypermetabolism at rest is associated with the loss of muscle, tissue, and extracellular components in the body. For this reason, the early detection of hypermetabolism, monitoring nutrition, and correcting deviations in nutritional status is of great importance in patients with liver cirrhosis.

The laboratory methods necessary for determining nutritional status include total protein, plasma albumin, blood glucose levels, lymphocyte counts, total cholesterol, potassium, sodium, and daily urinary creatinine and urea levels. Additional tests may include transferrin, lactate, triglycerides, magnesium, calcium, phosphorus, and iron.

Currently, there are several methods for determining nutritional status. One of them is the Nutritional Risk Index (NRI), which is determined using the following formula: $NRI = 1.519 \times \text{plasma albumin (g/L)} + 0.417 \times (\text{weight 1 (kg)} / \text{weight 2 (kg)} \times 100)$, where weight 1 is the mass at the time of examination and weight 2 is the normal body mass. Based on the NRI index, the nutritional status of patients is

categorized as follows: no nutritional deficiency ($\text{NRI} > 97.5$), moderate nutritional deficiency ($97.5 > \text{NRI} > 83.5$), severe nutritional deficiency ($\text{NRI} < 83.5$).

Additionally, nutritional indices such as SGA (Subjective Global Assessment), NRS (Nutritional Risk Screening), and MUST (Malnutrition Universal Screening Tool) are available.

In conclusion, it should be noted that nutritional deficiency is identified in many patients with chronic liver diseases. The inadequacy of nutrition, in turn, affects the cellular components of the immune system. Recognizing nutritional deficiency requires careful treatment of patients, as these conditions may lead to subsequent complications.

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