NUTRITIONAL SUPPORT FOR SEVERE SEPSIS IN PEDIATRICS AND SURGERY.

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Abstract. Parenteral feeding in children, who are in critic condition, is one of the more complicated problems in intensive therapy. There are no common opinions in the solution of this problems not only in practice, also and in the world literature. There are no criteria and recommendations for using parenteral feeding in children in the intensive therapy unite. The main indication for conducting of nutritious support in critic conditions is metabolic requirement, also loss of proteins and nutrients. Nutritious support is directed to prevent development of severe exhaustion (protein-energetic insufficiency) in the background of hyper catabolism and hypermetabolism, syndrome of enteral insufficiency at the developing multi-organ dysfunction or its high probability,

Key words. Septic shock, phenomenon, nutritional support, sepsis in pediatrics.

Introduction. Enteral insufficiency is one of the main causes of endogen intoxication, syndrome of systematic inflammation response, septic shock and multi-organ insufficiency. [1] Developing critic violation of water-electrolyte balance, circulator hypoxia of intestine's wall, dysbacteriosis with proximal microbe colonization of intestine, considerable violation of antioxidant protection, local immunities and barer function of mucous membrane, phenomenon of progression "bacterial translocation" - just not many of these changes, which characterized this symptom complex.[2]

There is well-known the fact, that the younger child, the more intensity of exchange processes in him and the more energy is needed for covering expenditure of energy, associated with intensive growth, development, substances' exchange and supporting of main vital fiinctions[3] Therefore, the most important task for assigned nutritive support in intensive therapy is not only support of important proteins level and energy requirement, also prevent developing multi-organ insufficiency, creating condition for processes of restoration and up-growth of tissue [4].

All of the above-mentioned gives evidence about extreme importance adequate nutritious support in children, which are in critic condition [5]. The aim developing standard protocol of covering energetic demand in children, which are in critic condition, efficiency of which is already proved in randomized clinic studies in children with purulent-inflammatory processes, intestinal ileus, peritonitis, intestinal fistulas, necrotic colitis, severe sepsis with multi-organ dysfunction.

Materials and methods. 47 patients with different somatic and surgery pathologies, who had been treated in the children intensive care unit at Republican research center of emergency medicine during 2019 - 2020 years, are exanimated and studied. The average age of children - 1.3 ±0.5 year. Due to the type of nutritious support, the patients were divided 2 groups:

1 group - nutritious support with full parenteral(Selemin5%,Sepid, glucose 15-20%)

2 group - nutritious support is conducted with artificial special mixtures (or decanted maternal milk for children till 1 year old) + partial parenteral feeding with using amino acids (Selemin 5%, Imin and 15% glucose).

For valuation efficiency conducting therapy there is conducted measurement of following characteristics:

A) anthropometric indexes - measurement of body mass (1 time in a day), measurement circumference of shoulder (1 time per 3-5 days) and thickness of cellulocutaneous cover (1 time per day).

B) biochemical indexes - level of proteins, proportion of protein fractions, level of albumin, bilirubin, transaminase, triglycerides, acid-base balance and gases of blood (Astrup's micromethod).

For valuation of endogen intoxication dynamics, there are studied: lymphocytes, leukocytes, leukocytic index of intoxication, average molecules level. Also, there are evaluated patient stay duration in intensive care unite, lethality in groups.

Results .During calculation of energy demand in children at the different critic conditions, there is established that, the last one is waved within the limits 30-50 kkal/kg/day (at intensive hypercatabolism). For effective synthesis of endogen proteins, there is important to keep correlation of not proteins calorie to general nitrogen in average 1-gram nitrogen to 120-150 kkal. Carbohydrates are entered in the doses 6 gr/kg/day, with subsequent increasing till 2 gr/kg/day. Concentration of glucose solution is selected based on the general volume of infusion therapy (generally 15-20% solutions). By fifth days doses of carbohydrates reached maximally 15-16 gr/kg/day. Control was conducted due to checking out of glucose level in the blood till 2 times per day. In the case of high glucose level, correction was conducted using insulin 0.5 unit/kg. The high limit of dedicated glucose - 16.

Demand for protein substrates as general nitrogen load is - 0.20-0.35 gr/kg/day, that corresponds to requirement for proteins 1.25-2.5 gr/kg/day. The modem standard is using only-crystalloid amino acid solutions.

We start from 0.5 gr/kg/day with following increasing to 0.5 gr/kg/day, reaching maximally till 2.5 gr/kg/day by 5^{lh} day. Control of general protein, residual nitrogen, urea, acid-base balance, alanine aminotransferase, aspartate aminotransferase is necessary.

For covering grease, we started infusion of "Сепид" with the doses 0.5 gr/kg/day with following increasing to 0.5 gr/kg/day, reaching till 3 gr/kg/day with mandatory control of triglycerides, transaminases, bilirubin in plasma.

Discussion. We use vitamins and microelements from first day of parenteral feeding. Thus, due to our protocol standard, by 5^{th} day from the beginning of parenteral feeding, children is taken is full valued parenteral nutrition due to balanced system during following 10 days. Afterwards, due to dynamic of patient's condition, children start to be given mixture enteral tube feeding and partial parenteral feeding. For nutritive support, mixture without lactose was used. Using of this mixture in early after operation period is reasonable, as it is absorbed in upper parts of intestine maximally, digested fast and supports trophism of enterocytes.

The patients with surgical pathology, who need nutritive support are divided to 2 groups conditionally:

1. Patients with peritonitis, ileus. The average duration of full parenteral feeding is 3-5 days, then change to enteral tube feeding or independent enteral feeding.
2. Ill children with syndrome "short intestine" (as a result of spacious resection of intestine) - high ileus, intestinal fistulas, necrotic enterocolitis. The average duration of full parenteral feeding is 1-1.5 months.

We assign tire full parenteral feeding in early terms after operation (2-3^{rd} days) or after correction of homeostasis. In both groups with somatic and surgical pathologies, parenteral feeding was conducted due to analogical protocol standards.

There is established that early nutritive support, during first 24 hours since the moment of operation or development another critic condition, is more effective as compared with its using from 4-5^{th} days of intensive therapy.

This standard allows possibility to reach more early restoration of nutritive status in children with somatic and surgical pathologies, that is evident in fast discontinues of loss of body- mass, general protein and albumin level, fast restoration of intestinal passage. Using of the offered standard with usage of parenteral and enteral feeding provides patients with nutrients and

energy completely, promotes shorting of stay in the departments of resuscitation and intensive therapy, optimization of treatment quality in whole.

Referents.

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