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Nutrition Therapy in PICU

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Review Article

Optimal nutrition therapy in paediatric critical care in the Asia-Pacific and Middle East: a consensus

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Clinical Guidelines

Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Pediatric Critically Ill Patient: Society of Critical Care Medicine and American Society for Parenteral and Enteral Nutrition

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EXPERT STATEMENT

Nutritional support for children during critical illness: European Society of Pediatric and Neonatal Intensive Care (ESPNIC) metabolism, endocrine and nutrition section position statement and clinical recommendations



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Iranian guideline about nutrition in children admitted to intensive care

Children admitted to the intensive care unit are at risk of malnutrition, mainly due to chronic diseases they are suffering from. These patients require a different nutritional diet regimen from those in a normal or stable disease state due to change in metabolism under the stress of diseases.

According to the SIGN guideline based on evidence, first, articles matching our criteria were extracted from the literature, and then the strength of evidence was evaluated. Finally, a summary of statements consisting of details regarding the strength of evidence and recommendation level was reviewed by 12 experts, and two-round surveys were accomplished according to the Delphi method to reach a consensus. 27 statements in 5 categories with strength of evidence, grade of recommendations, and expert opinions are summarized.

Table 1 Summary of statements

Statement	Strength of evidence	Recommendation Level	Expert opinion
Nutritional assessment			
1. Nutritional assessment of children should be performed immediately on arrival at the intensive care unit so malnourished patients and those at risk of malnutrition can be identified.	Low	A	S
2. Anthropometric studies are the screening method of choice to asses admitted children in intensive care unit.	Low	A	S
3. Lab test like albumin, prealbumin, thyroid binding globulin are not suitable tests for evaluation of nutritional status of children admitted in intensive care unit.	Low	B	S
4. It seems that new procedures at the bedside, which are able to measure body composition parameters such as lean body mass (the amount of lean body weight without fat), the amount of body fat and the total body water, are needed.	Low	B	F

Calculation of energy consumption			
1. The best method to evaluate the energy consumption is the indirect method of measuring calories (indirect calorimetry).	Moderate	A	S
2. If indirect calorimetry is not available Schofield or WHO equation are used to calculate the energy.	Low	B	S
3. It is not commonly suggested to use the activity and stress factors when calculating the energy for patients in intensive care unit.	Moderate	C	F
4. Experts recommend provide at least 67% of calories need through the end of first week.	Low	C	F
5. Some valuable research offer 54-58 kcal/kg/d is minimum need for protein balance and prevention from catabolism.	Moderate	B	F
Choosing the method of feeding			
1. Enteral feeding is the best route of nutrition if it is feasible.	Moderate	A	S
2. The best time of initiation of enteral feeding is first 24-48 hours of admission.	Low	B	S
3. Achieving the nutrition/calorie goal is possible if there is written protocol in intensive care unit.	Low	C	W
4. The presence of a team of nutrition specialists helps to improve the nutritional status in the PICU.	Low	C	S
5. Gastric feeding is more practical if it is feasible.	Moderate	B	S
6. Bolus or continuous feeding has the same efficacy and there is not enough evidence to prove advantage of one.	Low	C	F
7. Gastric residual volume is not measured as a marker of feeding intolerance.	Low	C	F

Feeding goals			
1. In critically ill patients to create a positive protein balance at least 1.5 grams of protein per weight per day is needed.	Moderate	A	S
2. Polymeric enteral formula is the first choice in patients admitted in intensive care unit.	Low	B	F
3. Amino acid based formula should be considered in condition of moderate to severe food allergy.	Moderate	B	F
4. Peptide formula may be indicated in patients who are intolerant to polypeptide formula, small intestine absorption capability is reduced or gastric emptying is delayed.	Low	B	F
5. Routine administration of glutamine, arginin or micronutrients is not indicated.	Moderate	B	S
Parenteral Nutrition			
1. Parenteral nutrition is indicated in patients enteral nutrition is absolutely contraindicated.	Moderate	B	S
2. Parenteral nutrition is not indicated in first 24 of admission in any children.	Moderate	A	S
3. The best time or content of parenteral nutrition suitable for infants or children is not well defined.	Low	B	S
4. Parenteral nutrition is not recommended in children who start enteral feeding in a few days from NPO time.	Low	C	F
5. Supplementary parenteral nutrition is not recommended to achieve more calorie goal in the first week of admission instead of exceptional condition like severe malnutrition.	Low	B	F
6. Glucose infusion should start early if indicated and the infusion rate should be monitored. Hypoglycemia or hyperglycemia must be prevented.	Low	A	S