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How to Prevent Malnutrition

Genti Xhelilaj

Department of Pediatrics,University Hospital Centre "Mother Teresa", Tirana, Albania

Abstract: ***The World Health Organization defines malnutrition as "the cellular imbalance between supply of nutrients and energy and the body's demand for them to ensure growth, maintenance, and specific functions." More recently, the American Society for Parenteral and Enteral Nutrition (ASPEN) workgroup defined pediatric malnutrition as "an imbalance between nutrient requirement and intake, resulting in cumulative deficits of energy, protein, or micronutrients that may negatively affect growth, development, and other relevant outcomes." This study examined the incidence of malnutrition in children between the ages 0-5 years, hospitalized in General Pediatrics, department of pediatrics, University Hospital Centre "Mother Theresa", Tirana, Albania, from January to December 2015. It brings to our attention the possible causes, likely consequences and the main topics on preventing malnutrition. Its also focused on the need to educate mothers and societies on good nutrition and adequate diet that should be given to the infants.***

Keywords: nutrition, prevention, malnutrition, morbidities, education

1. Introduction

Malnutrition is a problem that requires immediate solutions.it can be caused from inadequate food supply, poor health conditions, incomplete knowledge about nutrition etc.. These causes are often combined in different ways. Many factors can cause malnutrition, most of which relate to poor diet or severe and repeated infections, particularly in developing countries, closely linked to the general standard of living and environmental conditions. Good diet helps for good intellectual development and growth, and also for the maintenance of good health.

According to the z~score or standart deviation the subtype of malnutrition are as follow:

a) Deficiency in growth :

- Underweight (> 2DS low weight for age, according to WHO definitions). A child who is underweight may be stunted, wasted, or both.
- Stunting (> 2DS low height for age, according to WHO definitions). It is the result of chronic or recurrent undernutrition.
- Wasting (thin for his height). It usually indicates recent and severe weight loss.

b) Micronutrient deficiencies or insufficiencies.

c) Overnutrition

- Overweight (between 2DS and 3DS weight for age, according to WHO definitions)
- Obesity (> 3DS weight for age, according to WHO definitions)

Some of the clinical and physical findings more frequently faced in our everyday practice associated with malnutrition are :

- Poor weight gain.
- Slowing of linear growth.
- Changes in a child behavior such as rritability, apathy, attention deficits.
- Decreased subcutaneous tissue.
- Edema on the distal extremities or anasarca (generalized edema).
- Changes on the oral mucosa or perioral changes such as cheilosis, angular stomatitis, papillar atrophy.
- We often examine a distended abdomen probably due to poor abdominal musculature or hepatomegaly secondary to fatty infiltrates.
- The skin is often a dry peeling skin with raw exposedareas, hyperpigmented plaques, the nails become fissured or ridged and the hairs are thin, sparse, brittle, easil pulled out, and turns a dull brown or reddish color.

d) Some of the main causes of malnutrition we face every day are listed below :

- Inadequate food intake.
- Chronic illnesses.
- Lack of knowledge about nutrition that results in nutritional problems in children.
- Poor socioeconomic conditions.
- Inappropriate infant and young child feeding and care in early life.
- Poor maternal health, nutrition during pregnancy wich can lead to prematurity and low birthweight.
- Infectious disease, such as diarrhoea.
- Multiple food allergies because of severe dietary restrictions.

2. Material and Methods

This is a retrospective study, performed in children hospitalized during January – December 2045 in the department of Pediatric General Medicine, University Hospital Centre "Mother Teresa", Tirana, Albania. There was a total of 1500 children included in this study, all aged between 0 – 5 years old. The height , the weight, feeding, gender , social economic status of the parents, maternal level of education, demographic data, morbidities, hospital permanency were evaluated . Malnutrion was measured by the standards of WHO growth. We valued the nutritional status in anthropomethric terms, using for this, the standarts defined from the World Health Organisation (WHO). WHO has defined the optimal criteria of well grouth in children 0-5 years old. This allows us to use standart criteria such as z~score or standart deviation instead of anthropological

parameters such as (weight, height, index of body mass, upper arm circumference etc.).

3. Results and Discussion

In our study are included 1500 children. 303 of them or 20.2 % are affected at least from one subtype of malnutrition (wasting, stunting, underweight, overnutrition).

From the total sample of 1500 patients, 388 of them had a birth weight lower than 3 kg. After analising the data, we had the results below:

Table 1: Birthweight

Birthweight	*No.*	*Percentage*	*Malnutried*
< 3 kg	163	42 %	*yes*
> 3 kg	225	58 %	*no*

As you can see from the table above 42 % of the children with a low birthweight, developed at least one subtype of malnutrition in the early life.

Improving prenatal care will probably decrease the number of malnutried children in the future. The importance of good nutrition for pregnant and lactating mothers should be the health care providers key word.

We analised the level of maternal education in the sample of malnutried children and we had the results below :

Table 2: Maternal level of education

Level of education	*No.*	*Percentage*
No level of education	44	14.5 %
Elementary school	46	15.2 %
High school	204	67.3 %
University	9	3 %

Improving mothers knowledges in nutrition will decrease the incidence of malnutried children. An adequate weaning diet and discouraging cultural beliefs and taboos which interfere with child's nutritional status should be a main topic promoted by health care providers.

We also wanted to bring to your attention some results of our study that came out during the data analising about the social economic status in the families of those malnutried babies.

- About 68.2% lives in rural areas.
- The major part of them had one or both parents unemployed.
- 26.2 % of those malnutried children had divorced parents.
- 8.6 % of them lives in extreme poverty.

As we can see above living in poverty or having a low social economic status its a serious favorable condition to malnutrition. Another variable we analised are the diet components.. The results are presented in the table below :

Table 3 : Feeding diet

Feeding diet	*No.*	*Percentage*
Exclusive breastfeeding > 6 months	51	16.8 %
Exclusive breastfeeding > 12 months	59	19.5 %
Cow milk	68	22.4 %
Formula	28	9.2 %
Mixed feeding with nutritional supplements	97	32.1 %

Exclusive breastfeeding specialy over 12 months and cow milk feeding is a predisposing factor for malnutrition. Nutrition education should be given to the mothers to aid adequate feeding of their children.

A big amount of our daily work consist in treating morbidities in malnourished children. Further we will present the most common infections affecting malnutried children.

Table 4: Morbidities in malnutried children

Morbidity statistics	*No.*	*Percentage*
Intestinal infections	135	44.6 %
Respiratory infections	73	24.1 %
Urinary infections	14	4.6 %
Other infections	81	26.7 %

As we can see from the table above, the most frequent infections in malnutried children are the intestinal ones.

Other important results that came out from our study and we wanted to bring to your attention about morbidities in malnutried children are :

- 23.8 % of the children diagnosed with at least one type of malnutrition had a Congenital Cardiopathy as co-morbidity.
- 65.6 % of them had developed secondary anemia due to micronutrient deficiencies.
- Their hospital permanency and treatment/recuperation time is longer compared to normal/non malnutried children.

4. Conclusion

Every country in the world is affected by malnutrition. Combating malnutrition in all its forms is one of the greatest global health challenges. Malnutrition increases health care costs, reduces productivity and slows economic growth, which can lead to a vicious circle of poverty and ill health.

The prevention of malnutrition in children starts with an adequate prenatal care and nutrition. Promotion of breastfeeding with the appropriate introduction of nutritious supplemental foods must be strongly recommended by health care providers. Also improving parents knowledges in nutrition will definitely decrese the incidence of malnutrition. Combined, social economic government politics, parents education in nutrition and adequate follow-up of early growth and development in young children from the health care providers can be an undefeated team against malnutrition.

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Author Profile

Genti Xhelilaj, Pediatrician, Division of General Pediatry, Pediatric, Rheumatology and Cardiology, Department of Pediatrics, University Hospital Centre "Mother Teresa", Tirana, Albania