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70 YEARS AGO IN THE *BOLETÍN MÉDICO DEL HOSPITAL INFANTIL DE MÉXICO*

Malnutrition☆

Desnutrición

Federico Gómez Santos†

Founder of the Hospital Infantil de México Federico Gómez, Mexico City, México

The following article was first published in 1946 in the *Boletín Médico del Hospital Infantil de México* (Bol Med Hosp Infant Mex. 1946;3(4):543-551). The present issue is reproduced as a tribute to the seventieth anniversary of this work, which was a milestone in the history of research on pediatric malnutrition and whose contributions have remained current throughout the world since 1950 to date.

1. Malnutrition

The poor assimilation of food by the organism leads to a pathological state with different degrees of severity and different clinical manifestations, which is called *malnutrition*.

The term malnutrition, already definitively adopted in the terminology of our hospital, came to simplify, extraordinarily, the confusion and variety of names that existed in the different Pediatrics schools and that were used to denominate similar ailments: clinical entities called hypotrepsy, hypotrophy, dystrophy, atrepsy, Parrott's atrophy, decomposition, wasting, and many others, are simply different degrees of the same disease of varied etiology, which we now generically refer to as malnutrition.

The word malnutrition points out to any abnormal loss of weight of the organism, from the slightest to the most severe, without any preconception regarding the state of the illness, as it can equally classify a child who has lost 15% of its weight with malnutrition, as a child who has lost 60% or more, by adjusting these data to the weight that corresponds to a given age, according to known constants.

Malnutrition may be an initially isolated disorder, with all the varying symptomatic courtship of its various degrees, or it may appear secondarily, as a syndrome grafted along infectious or other conditions, and then its symptoms and manifestations are more localized and precise.

The classification of the different degrees of malnutrition has been the object of distinct and sometimes confusing and not connotative terminology; we followed the simplistic terminology that we started at the hospital, which indicates quite clearly the state that a child with malnutrition has in its different stages.

We denominate first-degree malnutrition to any weight loss that does not exceed 25% of the weight that the patient should have for his or her age; second-degree malnutrition refers to a weight loss fluctuating between 25-40%; and finally, third-degree malnutrition refers to any weight loss that exceeds 40%.

2. Causes leading to malnutrition

It can be stated that 90% of the malnutrition in our environment is caused by a single and main cause: underfeeding of the subject, due to a deficiency in either quality or quantity of the foods consumed. In turn, underfeeding is determined by several factors: poor, miserable or unsanitary diets, or

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E-mail address: gomezfederico2016@hotmail.com

† Deceased.

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absurd and crazy diets with a lack of technique for feeding the child.

The remaining 10% of malnutrition is caused by enteral or parenteral infections, congenital defects in children, premature birth, and in the congenitally weak; lastly, prolonged stays at hospitals or closed institutions as the origin, which is referred to as hospitalism.

Hospitalism is an undetermined and mysterious pathological entity that profoundly alters the normal assimilation of food, which strikes children who have been hospitalized for a long time, even though they are surrounded by all hygienic and medical attentions, and despite the diet to which they are subjected to that is correct from all considered points of view.

It is a sort of deep reduction of the faculty to react that a child's organism normally possesses both defensive and assimilative, which affects the normal physiology of the digestive system and, in turn, has profound repercussions on all processes of anabolism.

At the time of Archbishop Lorenzana, in 1780, the friars that attended the Casa de Cuna (orphanage) wrote in their books that ''the children died of sadness''; they found no illness in them, they just did not progress, did not want to eat, became sad and then died.

Many years later, it has been verified [Rev. Mex. de Puericultura. Volume III. Page 245] how malnutrition was installed in the children at the orphanage despite all the medical and dietary techniques surrounding them. In order to save them, only one measure was available: to move them from the closed institution to their own or to a substitute home.

It has been proven the child under two years of age is who resents the most from the defense system, reactions and food assimilation after four or more months of hospitalization.

Underfeeding, the main cause of malnutrition, has multiple origins. However, in our environment, poverty, ignorance, and hunger, are the causes contending for primacy in the pathogenesis of underfeeding, which leads to malnutrition.

Usually, the breastfed child, even while living with a mother in a precarious situation of hygiene and abandonment, progresses satisfactorily until six or seven months of age; after this time, the tragedy begins, slowly but surely, causing stagnation or loss of weight leading the child towards malnutrition. The infant keeps growing and aging, and the mother, on the contrary, enters the negative phase of lactation, and the ability to satisfy the child's nutritional needs only by breastfeeding is reduced every day. Ignorance prevents her from knowing with what else she can feed her child or poverty prohibits her from acquiring what she knows her child can eat; the infant is barely sustained with the remains of breast milk that a badly fed woman, who is already in the period of physiological hypogalactia, can provide. First, there is weight stagnation; then, a disparity between weight and age ensues, and subsequently, the disparity between the three factors, weight, age and height, which normally follow parallel upward curves. In malnutrition, the only curve that remains normal is that of age, diverging extraordinarily from the others.

When the child reaches one year of age, he barely preserves the weight he had at six months of age; a few months previously or at that time, weaning and mixed feeding have already begun, sometimes nonsensical or miserable due to its meager quantity and quality. In any case, the physiology of the assimilation systems keeps deteriorating and the deceleration of the weight curve keeps accentuating. Infections are easily implanted on this weakened environment, affecting whether the enteral tracts or localizing to the most susceptible parenteral sites, which complicate the scenario with periodic diarrhea that progressively exhausts the meager reserves left in the organism.

In this slope of malnutrition, the child rolls with greater or lesser speed, going from mild to moderate and to the more severe malnutrition in an insensitive and progressive way if the expert intervention of the physician is not timely to stop this fall.

3. Clinical manifestations

3.1. First-degree malnutrition

The child becomes chronically weepy and discontented, in contrast to the happiness, good humor and adequate sleep he previously had; this stage goes often unnoticed by mothers, unless they are keen observers. Weight loss is not appreciated. However, when comparing his current weight with his previous (four or six weeks ago) weight, stagnation can be noted. During this period, diarrhea is not present; on the contrary, a mild constipation ensues. No vomits or other gastrointestinal manifestations are present. Infections do not affect the child, who still conserves his reactive and defensive capacities nearly intact, as it generally occurs at the beginning of the illness. Therefore, the main sign, which can be observed only if it is searched for, is the stagnation or a slight weight loss that persists: the child ages and weight falls behind, decelerates or stagnates.

3.2. Second-degree malnutrition

Imperceptibly, weight loss is accentuated, and ranges from 10-25% to larger losses; the fontanelle sinks, as well as the eyes, and the tissues of the body become loose, without turgidity and elasticity. The child sleeps with half-opened eyes and is prone to colds and otitis. His irritability is accentuated; diarrheal disorders are easily found, and sometimes, even from this degree of malnutrition, discrete manifestations of B factor deficiency, as well as edema caused by hypoproteinemia can be observed.

The end of the second stage of malnutrition is frankly alarming and the parents are driven to go to the doctor if they had not done so before.

If the physician is impressed by the acute enteral event, or by the pharyngitis or otitis, and does not carefully evaluate the diet of his patient to estimate its quality and energetic efficiency, this vital line of guidance is missed, and if he prescribes ''to treat the infection'', the child would have taken another step in the fatal slope of malnutrition.

Consequently, if the administered dietary and therapeutic measures are not sufficiently careful and effective, the patient falls into an exquisite intolerance to all kinds of foods and to all quantities given. This intolerance obliges