Research Article

IMPACT OF THERAPEUTIC FOODS ON THE STATURO-WEIGHT AND HEMATOLOGICAL PARAMETERS OF MALNOURISHED CHILDREN AT THE THERAPEUTIC NUTRITIONAL UNIT OF MONGO (CHAD)

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Abstract

Objective : to evaluate the contribution of therapeutic foods on staturo-weight and haematological parameters in malnourished children at the Mongo Nutritional Therapeutic Unit (Chad). **Methodology:** This is a prospective cross-sectional study aimed at recording epidemiological and hematological variables of children aged 6 to 59 months undergoing nutritional recovery at the Mongo therapeutic nutritional center. 112 children admitted for severe acute malnutrition with medical complications and meeting the admission and selection criteria were included. The nutritional management of non-diarrheal malnourished children was carried out by administering therapy and a diet according to the physiopathological conditions and dietary needs of the children received. The average length of hospitalization was 6 days. Anthropometric and biological data of malnourished children were obtained from the survey forms developed for this purpose. **Results:** The hemoglobin level of the anemic children at entry was normalized to 64% at discharge and the leukocyte level was normalized to 74%. The children's staturo-weight parameters normalized with a weight gain that varied between 0.1 and 1.6 kg, i.e. 63% and 104% of the target weights respectively. **Conclusion:** Therapeutic foods contribute to a good recovery in malnourished children.

Keywords: Therapeutic foods, Staturo-ponderal and Hematological parameters, Malnourished.

INTRODUCTION

In developing countries, under nutrition is currently one of the most concerning public health issues globally, with 165 million children under five years of age stunted, 52 million wasted, and more than 2 billion people suffering from micronutrient deficiencies, primarily vitamin A, iron, iodine, and zinc (Luchuo *et al.,* 2013).Women of childbearing age, infants, and young children are the groups most vulnerable to malnutrition (Lartey, 2008; Zulfi *et al.,* 2013; Suchdev *et al.,* 2015). A study on anemia and delayed nutritional recovery in malnourished children in Dakar in 1999, revealed that 89.4% of children were anemic with a hemoglobin level below 11g/dl. However, severe anemia was the most common (Diagne *et al.,* 2000). According to MSF, in 2009, a child died of malnutrition every six seconds, on average, or more than five million per year (Unicef, 2013). Indeed, malnutrition remains a major public health problem as it is endemic in Chad. Between 2000 and 2010, the prevalence of underweight increased from 28% to 30%, the prevalence of chronic malnutrition from 28% to 39%, and the prevalence of global acute malnutrition from 14.6% to over 16% (INSEED, 2010). Therapeutic management is provided by different foods used in the nutritional recovery of malnourished children. These foods would not only have positive effects on the staturo-weight growth of children, but also and especially on the regulation of biological parameters. It is with the aim of assessing the management of malnourished children based on therapeutic foods on the staturo-ponderal and hematological parameters of malnourished children treated in the therapeutic nutritional center of Mongo, that we proposed to conduct this work.

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METHODS

This is a prospective cross-sectional study aimed at recording epidemiological and hematological variables of children aged 6-59 months undergoing nutritional recovery at the Mongo Nutritional Therapeutic Center. It took place from September 1 to November 30, 2014. For the realization of this work the technical materials of the standard care of malnourished. We also used EDTA tubes for hematological analysis using hematology machine MINRAY BC 2800. A total of 112 children admitted for severe acute malnutrition with medical complications and meeting the admission and selection criteria were included.

The children were evaluated clinically and biologically at admission, follow-up and discharge. Nutritional management and recovery was achieved by administering therapy and diet according to the pathophysiological conditions and dietary needs of the children received. Data collection was carried out by interviewing the nannies, followed by the recording of clinical observations, and the results of anthropometric and biological data of the malnourished children, using standard survey forms, developed for this purpose. On the ethical level, the administrative and hospital authorities and the children's mothers were informed of the objectives and procedures of the study. Parental consent was obtained. The data collected were treated confidentially.

RESULTS

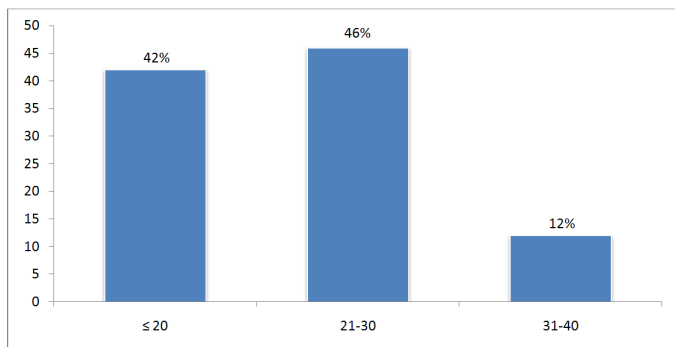Distribution of mothers according to socio-demographic parameters

Figure 1. Distribution of mothers by age

Distribution of children by gender
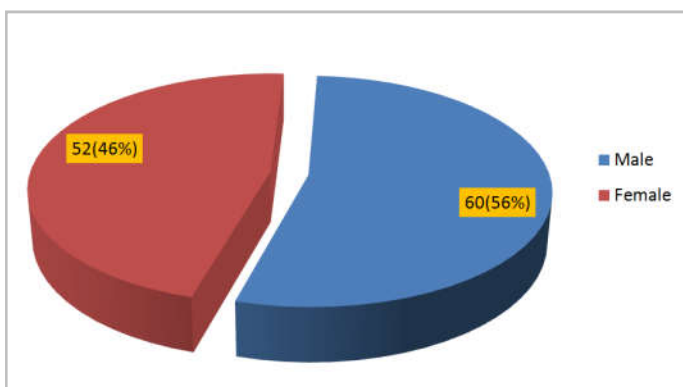
Figure 2. Gender distribution of children

Table I. Recovery status of children at discharge

Recovery	Number	Percentage
Very good	5	4%
Good	44	39%
Fairly good	52	46%
Poor	1	2%
Unknown	10	9%
Total	112	100%

Table II. Distribution of children by type of anemia

Types of anemia	Input		Output	
	number	Percentage	number	Percentage
Moderate anemia	54	62%	42	65%
Severe anemia	12	14%	0	0%

Table III. Distribution of children by white blood cell count

Leukocyte	Input		Output	
	Number	Percentage	Number	Percentage
normal leukocyte count	18	16 %	18	16%
Abnormal leukocyte count	46	45 %	56	55%

DISCUSSION

This work is part of a prospective study aimed at the nutritional recovery of malnourished children in therapeutic feeding units, through therapeutic foods. 42% of the nannies were younger than ≤ 20 years of age but higher than Diarra in 2010 in Mali who found 9.8% for the age range of 15 to 19 years.

Nutritional education of young girls and parents should be considered within this stratum to combat malnutrition. Our study found that malnutrition affects 56% of male children and 44% of female children. These results are contrary to those of Dembélé in 2012 in Ouagadougou and Madjitoloum in 2012 in Chad, which respectively found 56.60% for females versus 43.40% for males and 56% for females versus 43% for males. This random difference could only be due to the difference in attendance between the two sexes. At discharge, all the children's weight parameters were normalizing except for one child who had a negative weight percentage (1%). Statistically, this increase in the children's weight at discharge from the UNT is significant because the calculated p-value is below the significance level (0.05< 0.0001). After treatment, malnourished children with moderate anemia represented 65% of cases and no cases of severe anemia. Even though severe anemia was controlled in malnourished and diarrheic children, it remains a major concern. At discharge, a normalization of leukocytes was observed. A hyperleukocytosis with 82% which dropped to 74%, should be of concern to the agents in charge of nutrition, as it could indicate a probable infection.

Conclusion

The treatment of severely malnourished children at the Mongo therapeutic center with therapeutic foods has allowed us to observe a normalization of the hematological parameters that were disturbed before the treatment and of the staturo-ponderal parameters. The use of therapeutic foods in malnourished children is a very effective method.

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