

Evaluation of Malnutrition among Children Aged 2 to 60 Months Hospitalized in the Pediatric Services of Ziguinchor Hospital

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Abstract

Introduction: Malnutrition is a public health problem in the world and especially in developing countries. The prevalence of malnutrition at the national level does not reflect the situation in hospital. It is in this context that we assessed the nutritional status of children under 5 years old hospitalized pediatric services in the municipality of Ziguinchor.

Material and methods: This was a prospective study that ran from June 1 to October 30, 2016. Included were children aged 2 to 60 months hospitalized in one of the two services. Children with esdato-ascetic syndrome were not included. Epidemiological, anthropometric data, and associated diagnosis were studied.

Results: We included 114 children (70 boys and 44 girls). The average age was 21.9 months. Forty-two point one percent (42.1%) of infants <6 months were breastfed exclusively with breast milk. The weaning of children is done early in 55.3%. The mean age of mothers was 26.6 years.

The socioeconomic level was low in 62.3% of cases. The prevalence of malnutrition averaged 35.5% for underweight; 32.9% for wasting and 32.0% for stunting. Acute respiratory infections (ARI) and acute gastroenteritis were the most common associated conditions. Mean hospital stay was 8 days ± 009. About two thirds of the patients (n=72) had a hospital stay of more than 7 days. Malnutrition was significantly associated with multiparity, low socioeconomic status, hospital stay of more than 7 days and infectious diseases.

Conclusion: Infections and hospitalization lasting more than a week are factors that promote malnutrition in children under 5 years of age.

Keywords: Malnutrition; Infant; Hospitalization

Introduction

Malnutrition is a pathological condition resulting from the relative or absolute deficiency or excess of one or more essential nutrients. It poses a public health problem in the world and especially in developing countries [1].

In Senegal, the 2015 DHS-C noted 21% of chronic malnutrition and 8% of acute malnutrition among children under 5 years of age. This prevalence of malnutrition in this age group of the general population does not reflect the situation in hospital [2,3].

Generally no prevention is taken during hospitalization for various conditions that expose to a risk of undernutrition. Patients are rarely assessed nutritionally upon admission, and caregivers only sporadically alert patients about meal consumption.

Thus we conducted this study whose main objective was to assess the nutritional status of children hospitalized in the pediatric departments of Ziguinchor hospitals.

Materials and Methodology

This was a cross-sectional and descriptive study that took place during the period from June 1 to October 30, 2016. All children aged 2 months to 60 months, hospitalized for more than 48 months, were included in the study. Hours in one of the two pediatric departments of Ziguinchor hospitals. According to WHO standards of 2000, underweight was defined by the weight (age) indicator <-2ET; chronic malnutrition by the size (age) <-2ET indicator and acute malnutrition by the weight (size) index <-2ET. Not included in the study were hospitalized children with glomerulonephritis, heart disease or chronic liver disease.

The parameters studied were epidemiological, sociodemographic and anthropometric data. The diagnosis retained, the duration of hospitalization and the patient's future were also studied. Data processing was done using Epi Info software. The statistical analysis of the relations was carried out thanks to the chi-square test and Fischer. A value of p<0.05 was considered significant.

Results

We included a total of 114 children (70 boys and 44 girls) during the study period. The average age was 21.9 months [4-6]. About one fourth (29) of the patients came from regions like Sedhiou, Kolda and the sub-region (Guinea Bissau, Gambia).

Fifty-eight point eight percent (58.8%) of children are immunized according to Senegal's EPI. Ninety-five point six percent (95.6%) of infants under 6 months were breastfed and 42.1% were exclusively breastfed.

More than half (n=66 or 57.9%) of children were diversified either early (46.5%) or late (11.4%). Weaning was done early in 55.3%. The mean age of the mothers was 26.6 years [3,7-9]. Half of the mothers were out of school and more than half of the families (65%) had low socioeconomic status.

The distribution of children according to weight (age) indicators; height (age) and weight (height) is superimposable between admission and discharge to the hospital (Figures 1-3). The prevalence of malnutrition in our study averaged 35.5% for underweight; 32.9% for wasting and 32.0% for stunting.

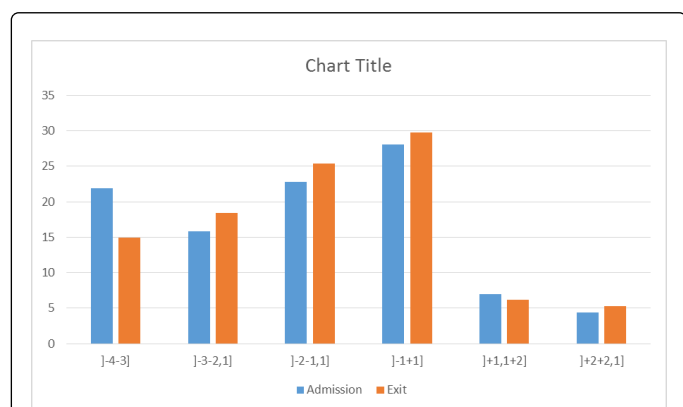


Figure 1: Distribution of children by weight (age) at admission and discharge.

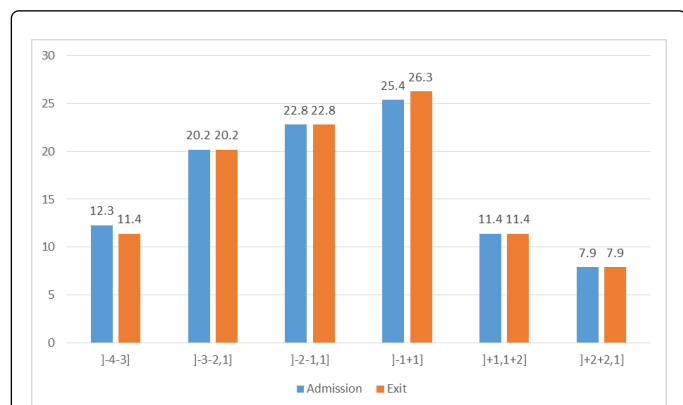


Figure 2: Distribution of children by size (age) at intake and discharge.

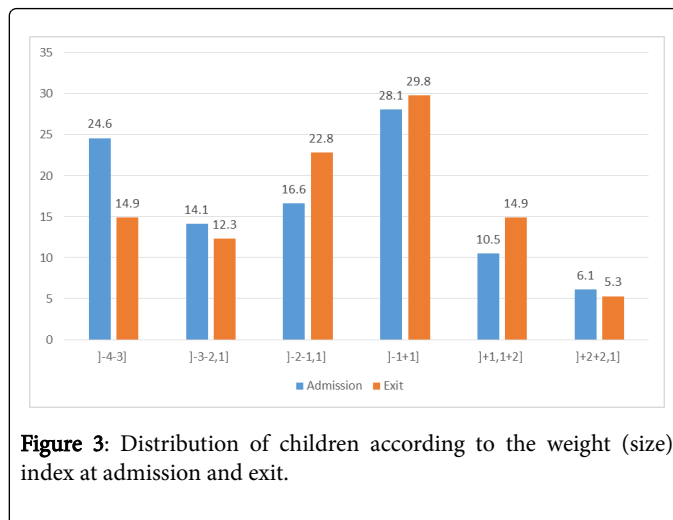


Figure 3: Distribution of children according to the weight (size) index at admission and exit.

Table 1 gives the distribution of children according to the associated diagnosis. Mean hospital stay was 8 days \pm 009 [3,10]. About two-thirds of the patients (n=72) had a hospital stay of more than 7 days.

Diagnosis retained	Number	Percentage
Acute febrile gastroenteritis	34	29.8
Acute bronchitis superinfected	18	15.8
Acute pneumonia	16	14.1
Bacterial and viral meningitis	14	12.3
Severe malaria	12	10.5
Pleuropulmonary Staphylococcal disease	4	3.5
Pulmonary tuberculosis	3	2.6
Ganglionic tuberculosis	2	1.7
aso-occlusive crisis	2	1.7
HIV infection	2	1.7
Acute Articular Rheumatism	1	0.9
Septic shock	1	0.9
Epilepsy	1	0.9

Table 1: Distribution of children according to the associated diagnosis.

Three deaths (2.6%) were deplored in our study. All three (3) deaths occurred among children with severe acute malnutrition, two (2) of whom were associated with pulmonary tuberculosis and one (1) with HIV infection.

In our study, acute malnutrition and chronic malnutrition were significantly associated with multiparity (p respective values at 0.035 and 0.026); at a low socioeconomic level of the family (p respective value at 0.023 and 0.014); infectious diseases such as Acute Respiratory Infection (ARI) and acute gastroenteritis (GEA) (p respective values at 0.035 and 0.012) and a stay of more than one week in hospital (p value respective 0.035 and at 0.043).

Discussion

Using the same WHO standards as in Senegal's 2015 DHS, the malnutrition rates we found in our series are higher than those found at the national level. There was four times more wasting in our series (32.9%) than at the national level (8%); and 1.5 times more stunted in our series (32.0%) than at the national level (21%).

These rates can be explained by the fact that our study concerned hospitalized children. Similar results have been found by other Senegalese authors before [4-6].

In our study, the factors associated with malnutrition were classic (low socio-economic status, extended hospital stay, multi-parity, early diversification and weaning). These factors are found in several other Senegalese and African studies [4,7-10]. Poor nutrition leads to malnutrition in children. In our study, the exclusive breastfeeding rate was 42.1%. This rate is higher than that at the national level (33% according to 2015 DHS-C). In general, exclusive breastfeeding is a problem in developing and developed countries. To improve the rate of exclusive breastfeeding, WHO and UNICEF have introduced new guidelines through the ANJE (Infant and Young Child Feeding). The goal is to reach at least 50% in 2025.

Conclusion

Malnutrition among children under 5 is more common in our pediatric services compared to nationwide. It is associated with the low socioeconomic status of families, hospitalization for more than 7 days, maternal multiparity, early childhood diversion and weaning.

We recommend that health personnel in the region continue to promote exclusive breastfeeding for infants under 6 months of age and assess the nutritional status of children upon admission. They must also continue to provide meals and actively encourage children to eat during the period of hospitalization.

Conflict of Interest

None declared.

What is Known About this Subject?

Undercurrent malnutrition is responsible for significant infant and child mortality and morbidity in developing countries.

What Does Your Study Bring Back?

Despite the many efforts and interventions of WHO / Unicef, malnutrition is assessed in hospitalized children, and therefore poorly supported in pediatric services in developing countries.

Author Contributions

Review of the bibliography: Lamine Thiam; Assane Dramé; Isabelle Zokébé Coly; François Niokhor Diouf.

Writing the article: Lamine Thiam; Assane Dramé; Isabelle Zokébé Coly; Assane Sylla; Ousmane Ndiaye.

References

1. <https://www.imf.org/external/pubs/ft/scr/2005/cr05439.pdf>
2. http://www.ansd.sn/ressources/rapports/EDS-continue_2012-2013.pdf
3. Dillon JC (2003) Progress in the world health status of children during the period 1990-2000. *Med Trop (Mars)* 63: 407-412.
4. Diouf S, Diallo A, Camara B, Diagne I, Tall A, et al. (1990) Protein-calorie malnutrition in children under 5 years old in Senegalese rural area (khombole). *Med Afr Black* 37: 29-32.
5. Fotso M (2013) Malnutrition in children aged 0-5 years hospitalized at Albert Royer Hospital, epidemiological aspects and evolution of anthropometric parameters. [Med thesis].
6. Sarr NF (2014) Nutritional and health assessment of children aged 0-23 months in Kedougou and Vélingara. [Med thesis].
7. Aouhougon O (2007) Protein-energetic malnutrition and its risk factors in children under 5 years old in the Tugan health district [Mémoire Diploma of health attaché in epidemiology].
8. http://www.statistics-cameroon.org/downloads/EDS-MICS11/DHSMICS_2011_preliminary_report.pdf
9. <https://dhsprogram.com/pubs/pdf/FR288/FR288.pdf>
10. Sibetcheu D, MA Fomo, Libite PR, Jazet E (2011) Cameroon Demographic and Health Multiple Indicator Survey, ESDC-MICS, Maryland, USA.