The Prevalence of Nutrition Related Cases in Hospitalized Children

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Abstract: *Hospital admission of under-five children and the stay of most children are highly dependent on their nutritional status prior to admission. This study was carried out to assess the prevalence of nutrition related cases among hospitalized children in Federal Medical Center, Owo. Secondary data was collected from 141 files of sick children admitted into the paediatric department of Federal Medical Center (FMC), Owo from 2009 to 2014. Data was analysed using Microsoft excel. Descriptive statistics was used to generate frequencies and percentages. Result showed that61% of the cases were males, and 39% were females, and mean age and mean weight of all the children were 13.86±12.88 months and 7.12±3.62 kg respectively.The diseases diagnosed were Malaria (2.8%), Diarrhoea (15.6%), severe acute malnutrition (SAM) (19.8) and some patients were diagnosed with Malaria in addition to Diarrhoea (26.9%). About 66.0% spent between 1-5days, 24.8% stayed between 6-10days, 7.8 stayed between 11-20days while 1.4% spent above 20days on admission. Also, 0.7% died during the admission while 99.3% were discharged alive. Moreover, the nutritional status of the admitted patients showed 43.7% were underweight, 19.3% had normal weight and 3.7% were overweight.* ***T****he prevalence of severe malnutrition among paediatric admitted patient was highest in 2014 and lowest in 2009.*
Key words: *SAM, prevalence, paediatric, disease, infection*

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I. Introduction

Nutritional support is an essential aspect of the clinical management of children admitted to hospital (Taylor *et al* 2003). Hospital admission of under-five children and the stay of most children are highly dependent on their nutritional status prior to admission. The mean length of hospital stay of most children is only a few days but can be considerably longer in some children with chronic diseases or underlying nutritional problems. During the brief stay, attention is mostly focused on the primary medical problem where as the main underlining problem may be malnutrition and there is little attention given to the child's nutritional status especially Severe Acute Malnutrition (SAM). Severe Acute Malnutrition, defined by severe wasting (weight for-height < -3 z-scores or $< 70\%$ of the median WHO growth standards) can make children to become susceptible to illness. Poor health and undernutrition often overlap among under-five children. The relationship between undernutrition and morbidity is complex as illness frequently results in undernutrition which in turn increases susceptibility to infectious disease (WHO, 2000; UNICEF, 2011)).

The majorcausesof hospital admission of children is malnutrition which may be essentially associated with poor infant feeding practices such aspoor breastfeeding and complimentary feeding practices. Report from WHO (2008) revealed that only about 35% of infants were exclusively breastfed during the first months of life globally. And sadly in Nigeria, exclusive breastfeeding still stands at 17% (NDHS, 2014)and complimentary feeding is often introduced too early or too late. Sometimes, the meals served children were usually empty calorie and may be unsafe (WHO, 2008). Inadequate nutrients and dietary intake have be found to be the major cause of under nutrition. These have been accountable for 60% of the 10.9 million deaths annually among children under five directly or indirectly (Piwoz & Prebe, 2010). More than two-thirds of these deaths, have been connected to poor and inappropriate feeding practices, which takes place during the first year of life (WHO, 2006). Non- exclusively breastfed infants are associated with iron deficiency anaemia, and chronic malnutrition, which reduces resistance and increases susceptibility to diseases. Currently, early life malnutrition is a serious concern as it have been found to retard cognitive development (Caulifield, 2004). This places a substantial burden on both developing and developed countries due to the fact that it not only increases mortality but also have impact on the national health and development burden because of its associated morbidities, including impaired cognitive ability, reduced productivity and indirect death.

In the past since the early 1980s the prevalence of acute and chronic malnutrition of children admitted to the hospital is highly dependent on the reason for admission (Ahmed *et al*, 2008) Therefore, nutritional support is an essential aspect of the clinical management of children admitted to hospital. Hence, this study assessed the prevalence of nutrition related cases among children admitted in Federal medical Center in Owo Ondo state Nigeria.

II. Methodology

Secondary data was collected from 141 files of sick children admitted into the paediatric department of Federal Medical Center (FMC), Owo from 2009 to 2014. The Center is a 300 bed hospital facility with 24hours health care delivery service in all her various department. The study was approved by the ethical committee of the institution after which data was obtained. Data was analysed using Microsoft excel. Descriptive statistics was used to generate frequencies and percentages.

III. Results

Table 1 showed the demographic data of the admitted patients where 141 case files of the patient were analysed, 61% were males, while 39% were females. The mean age and mean weight of all the subjects were 13.86 ± 12.88 years and 7.12 ± 3.62 kg respectively.

Table 1: Demographic data and weight of the admitted patients

Characteristics	Frequency		Percentage (%)	
Sex				
Female	86		61.0	
Male	55		39.0	
Total	**141**		**100.0**	
	Male	**Female**		**Total**
Age (months)	12.72 ± 11.61	15.56 ± 14.53		13.86 ± 12.88
Weight (kg)	6.96 ± 3.31	7.36 ± 4.07		7.12 ± 3.62

The diseases diagnosed were Malaria (2.8%), Diarrhoea (15.6%), severe acute malnutrition (SAM) (19.8), some patients were diagnosed with Malaria in addition to Diarrhoea (26.9%)

Table 2 Disease characteristics among hospitalised children.

Diagnosis	N	%
Malaria	4	2.8
Diarrhoea	22	15.6
SAM	28	19.8
Malaria/ Diarrhoea	38	26.9
SAM/Malaria	3	2.1
SAM/Others diseases	46	32.8
Total	141	100

Table 3 shows that 66.0% spent between 1-5days, 24.8% stayed between 6-10days, 7.8 stayed between 11-20days while 1.4% spent above 20days on admission. Also, 0.7% died during the admission while 99.3% were discharged alive.

Table 3: Length of hospital stay, and discharge status

Characteristics	Frequency	Percentage (%)
Hospital stay		
1-5	93	66.0
6-10	35	24.8
11-20	11	7.8
<20	2	1.4
Total	**141**	**100.0**
Discharge status		
Dead	1	0.7
Alive	140	99.3
Total	**141**	**100.0**

Table 4 shows the prevalence of the nutritional diseases from 2009 to 2014. It was found that 2014 had the highest (29.8%) occurrence of nutritional diseases, 2011 (25.5%) and 2013 was the lowest with 9.9%.

Table 4: Prevalence of Nutrition diseases from 2009 to 2014

Year	Frequency	Percentage %
2009	2	1.4
2010	18	12.8
2011	36	25.5
2012	29	20.6
2013	14	9.9
2014	42	29.8
Total	**141**	**100.0**

Table 5 reveals the nutritional status of the admitted patients, 43.7% were underweight, 19.3% had normal weight and 3.7% were overweight**.**

Table 5: Nutritional Status of the Admitted Patients

Characteristics	N	%
Severely underweight	59	43.7
Moderately underweight	20	14.8
Mild underweight	17	12.6
Normal	32	19.3
Mild overweight	5	3.7
Moderately overweight	3	2.2
Severely overweight	5	3.7
Total	141	100.0

The table 6 shows the nutritional status of the subjects yearly, 33%, 42.3%, 55.9%, 50.6%, 38% and 43.7% were underweight in 2009, 2010, 2011, 202, 2013 and 2014 respectively.

Table 6: Nutritional Status categorized by year

CHARACTERISTICS	2009 %	2010 %	2011%	2012%	2013%	2014%
Severely underweight	33	42.3	55.9	50.6	38.0	43.7
Moderately underweight	20.0	8.6	11.1	7.1	23.8	14.8
Mild underweight	26.7	20.0	7.	0.0	7.1	12.6
Normal	13.3	20.0	14.8	35.7	19.0	19.3
Mild overweight	6.7	0.0	3.7	7.1	4.	3.7
Moderately overweight	0.0	5.7	3.7	0.0	0.0	2.2
Severely overweight	0.0	2.9	3.7	0.0	7.1	3.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

IV. Discussion

The demographic data obtained indicated that 61% were males, and 39% were females, and mean age and mean weight of all the children were 13.86 ± 12.88 months and 7.12 ± 3.62 kg respectively.The study revealed a high prevalence rate of nutrition cases in hospital admission of children as most of them were admitted for SAM, malaria and diarrhoea and the combination of any of these. This agrees with the study of Pawellek et al (2008) that indicated high prevalence of nutrition-related and malnutrition cases among hospitalized children. Earlier studies showed that malnutrition will jeopardize children's growth and development; it does increase morbidity and mortality especially among hospitalized children. The high occurrence of SAM might be due to the nutrition and disease cycle in which inadequate nutrition can predispose to increased susceptibility to diseases and the presence of disease will invariably jeopardise the health status of individuals. This is in line with earlier study by Aliyu et al, (2012)where "malaria and protein-energy malnutrition (PEM) were highly prevalent among young children in sub-Saharan Africa. They found that majority of "children with infections were associated with SAM. The cases of children nutritional status may worsens when malaria is prolonged as a result of poor hospital management. This may be due to the hospital capacity to carry out certain essential investigations— such as blood smear examinations for malaria parasites, estimations of haemoglobin or packed cell volume and blood glucose. Also blood grouping, total ferritin, and basic microscopy of body fluids are lacking. And sometimes, parent and care givers of sick children may not be able to afford these laboratory investigations even when available in the hospital. Thus the nutritional and health status of the child is made worse. If no care is taken   the price of malnutrition is so grave that it can affect behavioural and cognitive development of the child in later years (Haust et al, 2010; Joosten et al, 2011)

Also, the prevalence of children on admission with impaired nutritional status was highest in 2014 and lowest in 2009. The may be due to the incidence of food scarcity in Nigeria as a result of incessant flooding of farms, and terrorism activities in the farming communities in Nigeria. This flood results in the displacement of individuals in these communities and loss of farm produce that affect the food supply chain. Hunger and inadequate nutrient intakes will lead to malnutrition and this will aggravate the nutrition-infection cycle.

V. Conclusion and Recommendation

The study revealed that nutrition related illnesses are the most prevalent causes of hospital admission. Therefore, seeing the prevalence of nutrition related cases among paediatric hospital admission, it is important to employ the service of a nutritionist/ dietitian to help in the management of this children to reduce hospital stay and more attention should be paid to address food intake, dietary practices and constant anthropometric measurement during and after recovery in hospitalised children.

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