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ORIGINAL ARTICLE

Frequency of Malnutrition among children under 2 Years and its Relationship with Inadequate Breast Feeding Practice

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ABSTRACT

Background: In developing countries malnutrition is a serious child health issue. Almost 50%of 10.7 million deaths per year in developing countries are due to Malnutrition in children less than five years of age. It has been turn up that 20% of low weight children younger than five years belong to low and middle income countries with Pakistan contributing as the 3rd largest share of underweight children in world.

Aim: To know the frequency of malnutrition in children younger than 2 years of age, presenting at a tertiary care hospital and to compare the frequency of inadequate breast feeding practices among well-nourished and malnourished children.

Methods: A Cross Sectional Study was conducted from 10-10-2019 to 09-04-2020 in Paediatrics unit Sharif Medical City Hospital, Lahore. About 151 healthy children presenting for routine growth monitoring and immunization or with acute ailments of less than 3 days duration in previously healthy children presenting to the paediatric unit were included in this study. The written consent was taken from parents before enrolling in this study. Information regarding their demographic data and history of breast feeding was noted in the proforma. All the children with appropriate age underwent measurement of weight in minimum light clothes using standard protocols and were assessed for weight for age.

Results: From 151 patients, age ranges was 3 months to 24 months with mean and standard deviation was 14.01±6.43 months. The weight of children was observed as 6.5 kg to 13.0kg with mean and standard deviation was 9.05±1.88.In Gender distribution Male patients were 55.6% and female 44.4%. Mothers having no formal education were 35.8% and mothers having formal education were 64.2%. There were 39.7% fathers having no formal education and 60.3% fathers having formal education. There were 19.9% patients in which malnutrition was present while 80.1% respondents in which malnutrition was not present. There were 23.8% mothers who were practicing inadequate breast feeding methods while 76.2% mothers who were practicing adequate breast feeding methods. The frequency of inadequate breast feeding practice among well-nourished was found as 7.28% and 16.56% among malnourished children.

Conclusion: There were 19.9% respondents in which malnutrition was present. The frequency of inadequate breast feeding practice among well-nourished was found as 7.28% and 16.56% among malnourished children. Significant association was found between malnutrition and inadequate breast feeding. Effect modifiers like age and gender did not show significant influence except weight and parental education.

Keywords: Malnutrition, Breast Feeding, Parental Education.

INTRODUCTION

World food program describe Malnurtition as a condition in which the physical function of a person is affected to a level where she or he can no longer be able to maintain the adequate body process such as growth, physical work, pregnancy, lactation, resisting and recovering from illnesses. Breast feeding in infants is globally recognized as the perceptive and preferred way of feeding. Short term and long term health risks observed in those infants who were not on breast feeding[1,2].

In United States nearly 75% of women start breastfeeding, 44% women only continue breastfeeding at six month of age[1]. Its common perception that inadequate milk intake or inadequate milk production are causes of premature termination of breastfeeding. Insufficient milk intake may be because of failure of infant to extract milk or inadequate milk production. Insufficient milk production and failure of infant to extract milk are the two common causes of inadequate milk intake[3]. Failure of breast development during pregnancy may cause decreased milk production. Delay in the usual progression of lacto genesis to stage II stop the anticipated increase milk production which occur within the 5 days of life. The common cause of such a delay is maternal pre-pregnancy obesity[2], pregnancy-induced hypertension[4], polycystic ovarian syndrome[5], as well as high androgen associated complications during pregnancy[6], such as pre-eclampsia, maternal drugs that may reduce milk production (e.g., dopamine agonists).

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Following breast augmentation, lactation insufficiency is common, especially in women in whom there was a periareolar incision and/or loss of the nipple sensation[7]. However, breastfeeding is difficult in women who are undergoing breast reduction and free nipple technique[8]. During several days after birth many babies are sleepy and difficult to awake, causing insufficient milk transfer[9]. Exclusive breastfeeding is recommended for first six month of life by American Academy of Paediatrics (AAP). Iron rich complementary food should be offered around six months of age to infants. Weaning strategies including stopping midday feeding are better to eliminate because the child is active and may not become fussy that time. Person other than mother may have more success offering other feed[10]. Worldwide under five years of age severe protein energy malnutrition is a leading cause of death. Two classical syndromes associated with severe protein energy malnutrition are kwashiorkor and marasmus or with manifestations of both. In malnourished children on the basis of assessment methods initially weight deficit is observed, followed by length and head circumference is affected during a period of malnutrition. Guideline for the nutritional rehabilitation depends up severity and duration of nutritional deprivation[11]. Severe malnutrition is basically issue in developing countries. The clinical assessment the malnourished child includes differentiating between Marasmus and Kwashiorkor, Malnutrition severity and recognizing acute life threatening complications, including sepsis and acute dehydration. In united State severe malnutrition is uncommon. Children with chronic malnutrition usually have poor weight gain, short stature and deficit in lean body mass and adipose tissue. Decrease physical activity, mental apathy and

retarded psychomotor and mental development are the other features of malnutrition[12,13].

This study was conducted to determine the frequency of malnutrition among children under 2 years of age presenting at a tertiary care hospital and compare the frequency of inadequate breast feeding practice among well-nourished and malnourished children

MATERIAL & METHODS

A cross sectional study was conducted from 10-10-2019 to 09-04-2020 in Paediatrics Unit Sharif Medical City Hospital, Lahore after permission from Institutional Ethical Review Board.

Inclusion criteria:

- Age: From birth to 2 years
- Both gender
- Healthy children presenting for routine growth monitoring and vaccination or with acute illness i.e. a spell of illness for < 3 days in previously healthy child tertiary care hospital.

Exclusion criteria:

- Children with any chronic disease i.e. history of illness more than 3 months determined by their parents/ guardian.
- Children with any congenital defect determined on history and medical record.
- Preterm babies (< 37 weeks of gestation as per antenatal record).

In this study sample size of 151 cases is calculated with 95% confidence level, 5% margin of error and 11% as expected percentage of malnourished children. Non probability consecutive sampling technique was used.

Data collection procedure: 151 healthy children presenting for routing growth monitoring and immunization or with acute ailment for less than 3 days duration in previously healthy child presenting to the paediatric unit and fulfilling inclusion criteria were approached. For this study informed consent was taken from their parents before enrolling into the study. All the information regarding their demographic data and history of breast feeding was noted in the proforma. All the children with appropriate age underwent measurement of weight in minimum light clothes using standard protocols and were assessed for weight for age. Inadequate breast feeding was assessed on history.

Data analysis: Collected data was analyzed using SPSS version 17.0.Numerical variables like weight was summarized as mean and standard deviation. Qualitative variables like malnutrition, gender and breast feeding till 2 years of age were presented in the form of frequency and percentages. Chi square test was applied to check statistical significance for age, weight, gender and parental education status. P value≤0.005 was used as statistically significant.

RESULTS

It was from 151 patient that the minimum age was 3 months and maximum age was 24 months with mean and standard deviation of age was of the age was 14.01±6.43 months. The minimum weight of children was observed as 6.5kg and maximum weight of children was 13.0 kg with Mean and Standard deviation was 9.05±1.88.There were 84(55.6%) male patients and 67(44.4%) were female patients. There were 54(35.8%) mothers having no formal education and 97(64.2%) mothers having formal education. There were 60(39.7%) fathers having no formal education and 91(60.3%) fathers having formal education. There were 30(19.9%) patients in which malnutrition was present while 121(80.1%) respondents in which malnutrition was not present. There were 36(23.8%) mothers who were practicing inadequate breast feeding methods while 115(76.2%) mothers who were practicing adequate breast feeding methods. The frequency of inadequate breast feeding practice among well-nourished was found as 7.28% and 16.56 % among malnourished children. Significant association was found in malnutrition in children and inadequate breast feeding with p-value = 0.000.After stratification and using Chi-squre test it was seen that presence of Malnutrition was not significantly associated with age group having p-value = 0.686. Association with gender having p-value = 0.683 is not significant. Presence of malnutrition was significantly associated with weight having p-value= 0.000.

Table 1: Descriptive statistics (n=151)

	Minimum	Maximum	Mean	Std. Deviation
Age	3	24	14.01	6.43
Weight	6.5	13.0	9.05	1.88

Table 2: Gender

Gender	Frequency	Percent
Male	84	55.6%
Female	67	44.4%
Total	151	100.0

Table 3: Presence of Malnutrition

Presence of Malnutrition	Frequency	Percent
Yes	30	19.9 %
No	121	80.1 %
Total	151	100.0

Table 4: Distribution of Inadequate Breast Feeding

Inadequate Breast Feeding	Frequency	Percent
Yes	36	23.8%
No	115	76.2%
Total	151	100

Table 5: Stratification of Malnutrition with respect to age (n = 151)

Age group	Presence of Malnutrition		Total
	Yes	No	
≤ 12 Months	12	54	66
> 12 Months	18	67	85
Total	30	121	151

P value 0.686

Table 6: Stratification of Malnutrition with respect to gender (n = 151)

Gender	Presence of Malnutrition		Total
	Yes	No	
Male	18	66	84
Female	12	55	67
Total	30	121	151

Chi-Square Test applied P value: 0.683

Table 7: Stratification of Malnutrition with respect to weight (n = 151)

Weight	Presence of Malnutrition		Total
	Yes	No	
≤ 9 Kg	30	48	78
> 9 Kg	0	73	73
Total	30	121	151

P value 0.000 *Chi-Square Test applied.

Table 8: Relationship between malnutrition and inadequate breast feeding (n=151)

Inadequate Breast Feeding	Presence of Malnutrition		Total
	Yes	No	
Yes	25	11	36
No	5	110	115
Total	30	121	151

P value 0.000 *Chi-Square Test

DISCUSSION

This study was conducted to analyze Malnutrition in children less than two years of agepresenting at a tertiary care hospital and to compare the frequency of inadequate breast feeding practice among well-nourished and malnourished children. 151cases were included according to the inclusion criteria. It was observed that the age range from 3 months to 24 months with mean and standard deviation of the age was 14.01±6.43 months. The minimum weight of children was observed as 6.5kg and maximum weight of children was 13kg with mean and standard deviation was 9.05±1.88.

In a previous study, according to height for age Z score, out of 100 children 80 were normal, 3 were severely stunted and 17

were stunted. According to weight Z-score, 79 children out of 100 were normal, 11 children were underweight and 10 were severely underweight. According to weight for height Z score.83 children out of 100 were normal, 4 were severely wasted and 13 were wasted. Macronutrient deficiency is common in our children. Deficiencies of Macronutrient and Micronutrient can also simultaneously. Since embryonic life our children's are affected by nutritional deficiency.

The children's who have nutritional deficiency are prone to develop acute respiratory infections, acute diarrheal diseases and other infections that further compound the condition[14]. There were 35.8% mothers having no formal education and 64.2% mothers having formal education. There were 39.7% fathers having no formal education and 60.3% fathers having formal education. There were 19.9% patients in which malnutrition was present while 80.1% respondents in which malnutrition was not present. There were 23.8% mothers who were practicing inadequate breast feeding methods while 76.2% mothers who were practicing adequate breast feeding methods. The frequency of inadequate breast feeding practice among well-nourished was found as 7.28% and 16.56% among malnourished children. Significant association was found in malnutrition in children and inadequate breast feeding with p-value = 0.000. Laghari ZA et all, in their research, showed 338(66.1%) were affected by malnutrition. Further analysis into (≤13.5 cm) mild, (11.5-12.5 cm) moderate and severe malnutrition (<11.5cm) was carried out. The data showed 221(43.2%) children had mild malnutrition, 65(12.7%) were suffering from moderate and remaining 52(10.2%) had severe malnutrition. As compared to male, in females severe malnutrition was significantly higher (P<0.05) than male children. In younger children age 6-23 months malnutrition is significantly higher than in older children age 24-59 months (p<0.05).It is seen that overall prevalence and severity of malnutrition is higher in female than male children[15].

In our study, presence of malnutrition was not associated with age group having p=value = 0.686andwith gender as well having p-value = 0.683 by using Chi square test. Presence of malnutrition was found to have significantly association with weight (p-value = 0.000).significant association was found between presence of malnutrition and mothers educational status and fathers educational status, p-value = 0.003 and p-value = 0.021respectively. The existing literature showed that malnutrition was found in 32% of children. 68% children were adequately nourished while 14% were moderately and 18% were severely malnourished. In our study malnutrition is significantly associated with maternal education (p0.01) and presence of family members with special needs (*p*=0.05). Significant association was not found between gender and malnutrition, family size , income of family, breastfeeding and presence of sibilling under 5 years of age. Avoid to plan such steps to identify the factors that place children at great risk for malnutrition[16].

CONCLUSION

There were 19.9% respondents in which malnutrition was present. The frequency of inadequate breast feeding practice among well-nourished was found as 7.28% and 16.56 % among malnourished children. Inadequate breast feeding is found to be a major cause of Malnutrition in children under 2 years of age. Effect modifiers like age and gender did not show significant influence except weight and parental education.

Conflict of interest: Nil

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