

Prevalence of Vitamin B12 Deficiency among Exclusively Breast Fed term infants

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ABSTRACT

Objective: To determine the rate of vitamin B 12 deficiency among exclusively breast fed term infants in central Punjab

Method: This descriptive case series included all 120 exclusively breast fed, term, and healthy infants with age range 1-6 months at Children, Hospital, Lahore. The maternal socio-demographic details in addition to infants' anthropometric measurements were recorded and CBS and serum Vit B12 levels were evaluated by sending the samples to the hospital lab. We used SPSS 16th version for data analysis.

Results: Mean age of the infants was 3.25±1.47 months. 58.33%(n=70) were male and 41.67%(n=50) were female infants. The mean serum vitamin B12 levels were recorded as 196.81 (±121.432)pg/mL. Frequency of low vitamin B12 (<200 pg/ml)in infants was recorded in Low serum vitamin B12 levels (<200 pg/ml) was seen in 66 (55%) of infants.

Conclusion: The rate of vit B12 deficiency is higher in EBF infants and due to its an important role in neurologic development during infancy, it is necessary to address this issue in infants.

INTRODUCTION

Infant feeding only from breast milk is defined as “exclusive breastfeeding”, except any syrup or drops consisting of any vitamin, medicine or mineral supplements.¹ For survival and development of infants exclusive breast feeding is essential. According to WHO, Pakistan ranks at 18% for “Early initiation of breastfeeding” whereas 37.7% of mothers practicing for “exclusive breastfeeding in early 6 months”.² Previous is evident that exclusive breast feeding helps in reducing mortality rate by 11.6% in under-five year children.⁴

The rate of breast feeding varies from country to country as only 10.4% in Canada,⁵ 2.8% in Republic of Congo whereas developing countries had higher rate of EBF.⁶⁻⁷ However, inadequate feeding may lead to a nutritional deficiency e.g. vitamin D deficiency, iron deficiency anemia and growth flattering.⁸

Vitamin B 12 plays a potential role in neurological development; however, its deficiency in exclusive breast fed infants may result in health hazards.⁹ The rate of vitamin B12 deficiency is significantly higher in infants of mothers with history of Vitamin B12 deficiency. In developoing countries with inadequate maternal diet particularly inadequate animal source foods are documented with increased risk of vitamin B 12 deficiency.¹⁰ Generally, it is observed that infants of mothers with strict vegetarians or those with low socioeconomic are deficient with Vitamin B12.¹¹

In our country, a significant proportion of mothers are lacking in adequate nutrition during pregnancy and lactation period, however, it is required to evaluate the frequency of vitamin B12 deficiency among exclusively breast fed term infants so that early management may be initiated.

METHODOLOGY

In this descriptive case series we included all 120 exclusively breast fed, term, and healthy infants with age range 1-6 months at Children, Hospital, Lahore, whereas those infants already diagnosed and under treatment of Vitamin B 12 deficiency were excluded from the study. The study was conducted during the year 2020. The maternal socio-demographic details in addition to infants' anthropometric measurements were recorded and CBS and serum Vit B12 levels were evaluated by sending the samples to the hospital lab. We used SPSS 16th version for data analysis.

RESULTS

Mean age of the infants was 3.25±1.47 months. 58.33%(n=70) were male and 41.67%(n=50) were female infants. The mean serum vitamin B12 levels were recorded as 196.81 (±121.432)pg/mL. Frequency of low vitamin B12 (<200 pg/ml)in infants was recorded in Low serum vitamin B12 levels (<200 pg/ml) was seen in 66 (55%) of infants. (See the Table below)

Vit B12 Deficiency	No. of patients	Age (in months)		Gender	
		1-3	4-6	Male	Female
Yes	66(55%)	21	45	25	41
No	54(45%)	20	34	22	32
P value		0.55		0.75	

DISCUSSION

Infants are in need of support of vitamin B12 development of brain and production of healthy red blood cells. Generally, during pregnancy, Vit.B12 is transferred through placenta or breast feeding after birth. The infants with mothers having adequate levels of Vitamin B12 may receive enough vitamin B12. However, if the mother having vitamin B 12 deficiency may lead to infants as well. In our country, a significant proportion of mothers are lacking with adequate nutrition during pregnancy and lactation period, however, it was required to evaluate the frequency of vitamin B12 deficiency among exclusively breast fed term infants so that early management may be initiated.

Infants who do not get adequate vitamin B12 can become deficient. If left untreated, vitamin B12 deficiency in infants can lead to permanent brain damage. Vitamin B12 is found in foods from animals, primarily meat, fish, milk and milk products, and eggs; therefore infants of mothers who consume a vegetarian or vegan diet may be at risk for vitamin B12 deficiency.

In our study, we recorded infants with Low serum vitamin B12 levels (<200 pg/ml) in 66 (55%). These findings are in agreement with a study by Apurva Kadiyala and colleagues¹² who evaluated serum vitamin B12 levels among EBF infants and recorded low serum vitamin B12 levels (<200 pg/ml) was seen in 95 (63.7%) infants. Our results with are in agreement with Apurva Kadiyala and others.

Someother studies¹³⁻¹⁶ evaluated the association of neonatal vitamin B12 deficiency with the mothers having inadequate intake or malabsorption of vitamin B12, particularly those who were vegan and exclusively breastfed infants.

Sophie Guez and others¹⁷ described a 5 months old Italian boy on EBF having 57 pg/mL serum vitamin B 12 levels whereas his mother had the history of taking multivitamin during gestational period. We found very few studies addressing this issue which needs other multicenter trials to validate our results.

CONCLUSION

We concluded that the rate of vit B12 deficiency is higher in EBF infants and due to its an important role in neurologic development during infancy, it is necessary to address this issue in infants.

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