

PROTECTIVE ROLE OF BREASTFEEDING IN CHILDREN WITH CELIAC DISEASE.

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ABSTRACT:

Background; The prevalence of thyroid disease is likely increased among children with celiac disease (CD). In addition, exposure to gluten-free treatment may be associated with a risk of thyroid disease, but this association remains controversial. **Objective;** To Determine the frequency of Prolonged breastfeeding in children with celiac disease at a tertiary care hospital. **Material and Methods;** Children with celiac disease (as given in operational definition) were enrolled and their mothers were inquired regarding history of breastfeeding in their child. All the data was entered and analyzed using SPSS-18. **Results;** Of these 160 study cases, 67 (41.9 %) were male patients while 93 (58.1 %) were female patients. Mean age of our study cases was 51.19 ± 11.25 months (with minimum age of our study cases was 12 months while maximum age was 60 months). Of these 160 study cases, 92 (57.5 %) belonged to rural areas and 68 (42.5 %) belonged to urban areas. Monthly family income up to Rs. 35000 was noted in 68 (42.5%) while more than Rs. 35000 was noted in 92 (57.5%) of our study cases. Mean disease duration of celiac disease was 5.23 ± 4.21 months and 117 (73.1%) had disease duration up to 6 months. Mean duration of breastfeeding was 18.23 ± 5.43 months and prolonged breastfeeding was noted in 124 (77.5%). **Conclusion;** Prolonged breastfeeding frequency was poor in children with celiac disease in our study. Prolonged breastfeeding was significantly associated with age, disease duration, ethnicity and maternal literacy. A mass campaign to create awareness regarding benefits of breastfeeding should be launched at national electronic and print media. Clinicians treating children having celiac disease should educate the mothers for breastfeeding benefits so as to decrease disease morbidity which will save them future hardships and improve quality of life of such patients.

Keywords; Celiac Disease, Breastfeeding, Prolonged.

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INTRODUCTION:

Celiac disease (CD) is a permanent immune-mediated enteropathy, triggered in genetically predisposed individuals by gluten. Gluten is a protein fraction of cereals, such as wheat, rye and barley. The genetic predisposition consists in the presence of alleles encoding for the molecules DQ2 or DQ8 of the human leucocyte antigen (HLA).^{1,2} CD is probably the best known multifactorial disease. Genetic predisposition and gluten intake are both necessary, but not sufficient for the development of this condition. Only roughly 5% of the DQ2/8+ worldwide population will eventually develop CD. Therefore, other factors are expected to be involved in CD pathogenesis. Among these, additional genes are increasingly being recognised; but repeated viral infections, modality of delivery, imbalance of the intestinal microbiota and infant feeding practices have also been hypothesized.^{3,4} Since the use of anti-transglutaminase and anti-endomysium antibodies in the early 1990s, two main groups of clinical presentation can be identified: patients with a symptomatic form of the disease, and

patients with a pauci (a)-symptomatic form detected during the work-up of another autoimmune disease or due to a family history of celiac disease. The prevalence of both forms of the disease is currently estimated between 1/100 and 1/400. Classical form of the disease is characterized by occurrence of diarrhoea, failure to thrive, and abdominal bloating in young infants in the months following gluten introduction⁵. Serological tests show high level of anti-transglutaminase and anti-endomysium antibodies. Until recently, the diagnosis required duodenal biopsies that show villous atrophy. HLA genotype can help for diagnosis: the absence of the HLA-DQ2 or DQ8 alleles has a high negative predictive value⁶. European guidelines recently proposed to reconsider the need for systematic endoscopy in typical symptomatic forms with high level of anti-transglutaminase and positive anti-endomysium. These recommendations are being assessed now. Currently, the gluten-free diet remains the only effective treatment for celiac disease. Children with celiac disease have to exclude from their diet all products containing wheat, barley and rye. Gluten-free diet causes clinical remission within a few weeks, but normalization of the small bowel mucosa and negativity of anti-transglutaminase antibodies are obtained in several months or even years. Gluten-free diet is useful to obtain clinical assessment, but also to prevent long-term complications of celiac disease, mainly osteoporosis, other autoimmune diseases, decreased fertility and cancers.^{7,8}

Several studies have suggested a protective role of breastfeeding and/or the timing and quantity of gluten introduction in the subsequent development of celiac disease. Especially, prolonged breastfeeding during the introduction of gluten-containing feeding has been associated with a reduced risk of developing celiac disease in infancy^{9,10}. The mentioned results suggest the existence of a 'window of opportunity' between 4 and 6 months of age in which gluten can be introduced in small amounts¹¹. The epidemiological evidence about this strategy for the primary prevention of CD is conflicting and definitive recommendations on early feeding in children at genetic risk for CD are not available¹². A study done at Karachi demonstrated frequency of breastfeeding was 88 % in children with celiac disease¹³. Stordel et al¹⁵ reported 81.8 % prolonged breast feeding in CD.

MATERIAL AND METHODS:

Consecutive 160 children with celiac disease of either sex were enrolled from outdoor of Nishtar Hospital, Multan. Children with mental disorders, malignancies and with growth retardation were excluded from our study. Informed consent was taken from the parents of these children describing them objectives of this study, ensuring them confidentiality of the information provided and fact that there was no risk involved to the patient while taking part in this study. Children with celiac disease were enrolled and their mothers was inquired regarding history of breastfeeding in their child. All the data was entered and analyzed using SPSS-18. Descriptive statistics was applied to calculate mean and standard deviation for the age of patients, disease duration of CD and duration of breastfeeding. Frequencies and percentage were tabulated for the categorical variables like gender, age groups, maternal education, monthly family income, residential status, ethnicity and breastfeeding.

RESULTS:

Our study comprised of a total of 160 patients meeting inclusion criteria of our study. Of these 160 study cases, 67 (41.9 %) were male patients while 93 (58.1 %) were female patients. Mean age of our study cases was 51.19 ± 11.25 months (with minimum age of our study cases was 12 months while maximum age was 60 months). Mean age of the male patients was noted to be 25.52 ± 5.11 months while that female patients was 48.06 ± 13.28 months (p=0.000). Our study results have indicated that majority of our study cases i.e. 147 (91.9 %) were more than 2.5 years. Of these 160 study cases, 92 (57.5 %) belonged to rural areas and 68 (42.5 %) belonged to urban areas. Monthly family income up to Rs. 35000 was noted in 68 (42.5%) while more than Rs. 35000 was noted in 92 (57.5%) of our study cases. Of these 160 study cases, 67 (41.9%) mothers were illiterate while 93 (58.1%) mothers were literate. Mean disease duration of celiac disease was 5.23 ± 4.21 months and 117 (73.1%) had disease duration up to 6 months. Of these 160 study cases, 56 (35.0%) were Urdu speaking, 61 (38.1%) were Punjabi, 37 (23.1%) were Saraiki and 6 (3.8%) were Baloch. Mean duration of breastfeeding was 18.23 ± 5.43 months and prolonged breastfeeding was noted in 124 (77.5%).

DISCUSSION:

It has long been thought that it may be possible to reduce the likelihood of celiac disease in children by prolonged breastfeeding and altering the introduction of timing of gluten to the diet of infants at risk of celiac disease. An epidemic of celiac disease among young children in Sweden during the 1980's and 1990's was

attributed to a number of feeding practices thought to be conducive to the loss of tolerance to gluten, including a lack of breastfeeding and high gluten content during its first introduction. The notion of a “window of tolerance” was supported by a prospective cohort study that found that the risk of celiac disease was greater among infants whose first exposure to gluten occurred prior to age four months or beyond age six months. The mechanism for this “window of tolerance” was thought to be related to the relationship between gluten and the gut barrier; introduction prior to maturation of this barrier (prior to four months), or a large initial gluten load after six months, may induce innate immune activation. But the fact that these inferences were drawn from observational studies, as well as inconsistent findings regarding the protective effect of breastfeeding, left some uncertainty about the optimal approach to prevent celiac disease.

Our study comprised of a total of 160 patients meeting inclusion criteria of our study. Of these 160 study cases, 67 (41.9 %) were male patients while 93 (58.1 %) were female patients. Babar et al ¹⁶ from Raheem Yar Khan also reported 60 % female gender predominance which is close to our study results. Alvi et al ¹⁷ from Lahore also reported 1:1.2 male to female ratio in children with celiac disease which is in compliance with our study results. A study conducted in Sukkur by Jamro et al ¹⁸ has also documented high female gender preponderance with 71 % which is in compliance with our study results. Soomro et al ¹⁹ from Karachi also documented male to female ratio was 1:1.4 which is in compliance with our study results.

Mean age of our study cases was 51.19 ± 11.25 months (with minimum age of our study cases was 12 months while maximum age was 60 months). Mean age of the male patients was noted to be 25.52 ± 5.11 months while that female patients was 48.06 ± 13.28 months ($p=0.000$). Our study results have indicated that majority of our study cases i.e. 147 (91.9 %) were more than 2.5 years. Babar et al ¹⁶ from Raheem Yar Khan also reported 6.35 ± 2.83 years mean age of the children with celiac disease which is slightly higher than our study results. The reason for this difference is due to our inclusion criteria, as we only included children up to 5 years of age maximum. Butt et al ²⁰ from Faisalabad reported 7.26 years mean age of the children with celiac disease. Alvi et al ¹⁴ from Lahore also reported 6.7 years mean age. Hashmi et al ²¹ from Lahore reported 6.67 ± 3.35 years mean age.

Of these 160 study cases, 92 (57.5 %) belonged to rural areas and 68 (42.5 %) belonged to urban areas. Monthly family income up to Rs. 35000 was noted in 68 (42.5%) while more than Rs. 35000 was noted in 92 (57.5%) of our study cases. Of these 160 study cases, 67 (41.9%) mothers were illiterate while 93 (58.1%) mothers were literate. Mean disease duration of celiac disease was 5.23 ± 4.21 months and 117 (73.1%) had disease duration up to 6 months. Of these 160 study cases, 56 (35.0%) were Urdu speaking, 61 (38.1%) were Punjabi, 37 (23.1%) were Saraiki and 6 (3.8%) were Baloch.

Mean duration of breastfeeding was 18.23 ± 5.43 months and prolonged breastfeeding was noted in 124 (77.5%). A study done at Karachi demonstrated frequency of breastfeeding was 88 % in children with celiac disease ¹³ which is close to our study results. Sajid et al ¹⁴ reported 60 % prolonged breastfeeding in celiac disease which is in compliance with our study results. Another study conducted in Norway by Stordel et al ¹⁵ has also reported 81.8 % prolonged breastfeeding which is close to our study results.

CONCLUSION:

Prolonged breastfeeding frequency was poor in children with celiac disease in our study. Prolonged breastfeeding was significantly associated with age, disease duration, ethnicity and maternal literacy. A mass campaign to create awareness regarding benefits of breastfeeding should be launched at national electronic and print media. Clinicians treating children having celiac disease should educate the mothers for breastfeeding benefits so as to decrease disease morbidity which will save them future hardships and improve quality of life of such patients.

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