The Professional Medical Journal
www.theprofesional.com

https://doi.org/10.29309/TPMJ/2021.28.10.6142

ORIGINAL PROF-0-6142

Psychosocial impairment in children with Celiac disease.

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Article received on:
10/10/2020
Accepted for publication:
12/02/2021

ABSTRACT… Objective: To determine the frequency of psychosocial impairment in patients with celiac disease. **Study Design:** Descriptive Cross Sectional study. **Setting:** Children Hospital Complex and Institute of Child Health, (CHICH) Multan. **Period:** August 2019 to August 2020. **Material & Methods:** A total number of 177 patients having age 4-16 years with diagnosis of CD were included in this study. In children with CD depressive illness were assessed by using Pediatric symptoms checklist (PSC) form and this PSC form was filled by asking questions from parents then filling of form by doctor. Outcome variable was calculated on the basis of Pediatric symptoms checklist (PSC), whether patient has psychosocial illness or not. **Results:** Mean age of patients was 8.91±3.50 years. Mean duration of celiac disease of patients was 4.27±2.00 months. There were 135 (76.27%) female patients and 42 (23.73%) male patients. Mean serum anti-tissue transglutaminase IgA (tTG-IgA) level of patients was 122.73±24.31 μg/ml. The socioeconomic status of 115 (64.97%) patients was poor, 31 (17.51%) was middle, 18 (10.17%) patient was upper middle and 13 (7.34%) patients was high. Psychosocial illness was present in 35 (19.77%) patients. **Conclusion:** Psychosocial illness was diagnosed in 19.77% children having CD. So the children with celiac disease should be monitored for symptoms of anxiety and depression and a thorough counselling of the children to reduce the risk of psychosocial illness.

Key words: Celiac Disease, Psychosocial Illness, Growth Retardation.

Article Citation: Afzal E, Sheikh A, Khosa GK, Noor K. Psychosocial impairment in children with Celiac disease. Professional Med J 2021; 28(10):1484-1488. https://doi.org/10.29309/TPMJ/2021.28.10.6142

INTRODUCTION

CD (Celiac Disease) is defined as "a chronic small intestinal immune mediated enteropathy precipitated by exposure to dietary gluten protein in genetically predisposed individuals".[1,2] Gluten is a protein which is found in Rye, Barley, and Wheat.[3] The worldwide prevalence of CD is 1%.[4] In India it is around 3%.[5] But in Pakistan it is largely unknown.[6]

American association of pediatrics (AAP) recommends anti-tissue transglutaminase IgA (tTG-IgA) level as best test for diagnosis of celiac disease and jejunal biopsy for confirmation of doubtful cases along with clinical features.[7] The commonest complications of CD include Chronic diarrhea, Irritable bowel syndrome, Psychosocial impairment, Pruritus, fatigue and bloating.[8] A high incidence of psychological impairment has been found in CD patients instead of a strict dietary management. It has been reported about 13.84% by Rubio-Tapia.[9] If a disease manifest early, it more affects the physical and psychosocial development of the child. Bystrom IM described that physical, psychological and social stress is more observed in children with chronic ailment like CD.[10]

Pediatric Symptom Checklist (PSC) is a best tool for the assessment of psychosocial impairment in children more than 4 years of age. PSC has been demonstrated for identification of psychosocial problems (cognitive, emotional and behavioral). It is established by Jellinek, et al as screening tool for psychological and behavioral problems in children with fair validity and reliability. PSC consists of 35 items. These are scored and rated as 0 for "Never,"1 for "Sometimes," or 2 for "Often" respectively depending upon symptoms present. The total score is calculated by adding

together the score for each item. A cutoff score of 28 or higher indicates psychological impairment for children and adolescents ages 6 through 16, While 24 or higher is significant. For 4 and 5years. If four or more items left blank (0-score), the questionnaire is considered invalid.[11,12]

Aim of my research was to know the prevalence of psychosocial impairment in children with CD, as No study about this problem has been done in Pakistan.CD patients faced more physical, and psychosocial stress as compared to healthy children[12], so management of this aspect must be started immediately to decrease the burden on family.

MATERIAL & METHODS

This Cross sectional study was done in Developmental pediatric department with collaboration of Gastroenterology department of CHICH Multan from August-2019 to August 2020.A total 177 children diagnosed as CD ,4-6years of age, of both gender was included in this study. Sample size was calculated by using Non probability consecutive sampling (By taking the prevalence of depressive illness 65.67% by Rubio-Tapia[10], margin of error 7%, confidence level 95%). The children with parental refusal, serum anti-tissue transglutaminase IgA (tTG-IgA) level with less than 50 ug/ml, Depressive illness in the family (parents and siblings), any congenital anomaly like congenital heart defect. (Detected on Physical examination and appropriate investigations), and any other chronic illness like Tuberculosis (detected by history, examination or chest x-ray if needed) were excluded from the study.

Parents/guardian were detailed about the study and prior written consent was taken. The study was approved by institutional ethical committee (34/07/Ethical/CH&ICH Multan). No conflict of interest was involved in this study. No financial support was provided by the institution or pharmaceutical company. A detailed history was taken from parents/guardian and patients. Patients with celiac disease were recruited from the Gastroenterology OPD and admitted children in ward according to the inclusion criteria. An informed consent was taken from the parents or guardian of patients after explaining nature of study, treatment and for using their data only for study. In patients celiac disease was diagnosed by tTG-IgA level. Socioeconomical status and Duration of illness was noted. Socioecononomical status was labelled on monthly income [(Poor (≤20000/month), Middle (>20000-40000/ month), Upper Middle (>40000-60000/month), High (≥60000).

In patients with celiac disease depressive illness were assessed according to Pediatric symptoms checklist (PSC) form and this PSC form was filled by asking questions from parents then filling of form by doctor. This checklist facilitates the recognition of cognitive, emotional and behavioral problems.

Outcome variable on the basis of Pediatric symptoms checklist (PSC) was whether patient has psychosocial illness or not. All this information was collected and recorded on a predefined Performa. Due autonomy, beneficence, confidentiality and non-maleficence was ensured to the patients.

All the collected data was analyzed through SPSS version 16.0. Quantitative variables like age, duration of celiac disease, serum tTG-IgA level and Pediatric Symptom Checklist score was presented as mean and standard deviation. Qualitative variables like gender, socioeconomic status and psychosocial illness of the patient were presented in frequency and percentage. Effect modifier like age, gender, duration of celiac disease, Pediatric Symptom Checklist score, socioeconomic status and psychosocial illness of the patient were dealt through stratification. Chi square was applied to find p value, which is considered significant if ≤0.05.

RESULTS

Mean age of patients included in this study was 8.91±3.50 years. Mean duration of celiac disease of patients was 4.27±2.00 months. Mean serum anti-tissue transglutaminase IgA (tTG-IgA) level of patients was 122.73±24.31 μg/ml. (Table-I).

There were more females as compared to the males. There were 135 (76.27%) female patients and 42 (23.73%) male patients. On frequency of socioeconomic status, the socioeconomic status of 115 (64.97%) patients were poor, 31 (17.51%) was middle, 18 (10.17%) patient was upper middle and 13 (7.34%) patients were high. Psychosocial illness was present in 35 (19.77%) patients versus it was found absent in 142 (80.23%) patients (Table-II).

Stratification of age, gender, duration of celiac disease and socioeconomical status was performed, this difference of all was statistically insignificant, p-value of 0.883, 0.232, 0.770 and0.469 respectfully. (Table-III)

Variable	Mean±S.D	Minimum	Maximum
Age (years)	8.91±3.50	04	16
Duration of celiac disease(months)	4.27±2.00	01	11
Serum anti tissue transglutaminase IgA level(ug/ml)	122.73±24.31	90	250

Table-I. Descriptive statistics of quantitative variables.

Variable		N %	%
Gender	Male	42	23.73
	Female	135	76.27
Socioeconomic status	Poor	115	64.9
	Middle	31	17.5
	Upper Middle	18	10.17
	High	13	7.34
Psychosocial illness	Present	35	19.77
	Absent	142	80.23

Table-II. Frequency of qualitative variables.

DISCUSSION

CD is an autoimmune disorder. In already predisposed person, when gluten is introduced in diet, it precipitates the manifestations of CD. The gluten is a protein mainly found in wheat and similar grains.CD now is one of most common pediatric malabsorption syndrome, which may be manifest at any age and its consequences includes Gastrointestinal, metabolic, nutritional and psychosocial impairment.[13]

Variable	Psychosocial Illness		P-Value
	Yes	No	
Age(years) 4-8 >8-16	 18 17	 75 67	0.883
Gender Male Female	 11 24	 31 111	0.232
Duration of illness (months) 1-4 >4-11	 20 15	 85 57	0.770
Socioeconomic status Poor Middle Upper middle High	 22 05 06 02	 93 26 12 11	0.469

Table-III. Stratification of variables to determine the association with psychosocial illness.

In present study we determined the frequency of psychological disorders in children with diagnosis of CD. In present study, psychological illness was diagnosed in 19.77% patients of CD. Some case control and case series studies done by gastroenterologists described the depression as a symptom of CD.[14] While the level of depression in CDs depends upon good medical management and strict dietary restriction is still under debate. Cohort study done by Ludvigsson JF and another by Siniscalchi M determined more depression in CDs compared to controls of the general population[15,16], while Garud Sothers at USA found no difference.[17] Similarly anxiety is reported as a common manifestation of CD patients by some researchers in case control studies, while some did not.[18,19] In Italy and Scandinavia the CD children are found to be more prone for psychiatric disorders.[20,21]

We did not find any significant difference in the frequency of psychosocial illness in male and female patients. Similarly, study done in Italy, anxiety and depression is found to be not related to gender[22] While a study done in Scandinavian reported lower levels of psychosocial impairment

in female CD patients.[23]

We also did not find any significant association between the duration of CD and psychosocial illness which is similar to the studies done in Italy.[19,22] we found no significant association of duration of disease with psychosocial illness.

There are some limitations for this study, it was a cross-sectional study, and we did not take healthy controls and compared the frequency of psychosocial impairment in healthy controls of similar age. So there is a need to conduct a large multicenter case control study in our population to determine the exact prevalence of psychosocial illness in CD patients.

CONCLUSION

Psychosocial illness is very common in children with CD. So the children with CD should be assessed periodically for symptoms of anxiety and depression and early counselling and psychotherapy of the children must be done to reduce the burden caused by psychosocial illness in the family.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author(s) Full Name	Contribution to the paper	Author(s) Signature
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2	Aslam Sheikh	Literature search, study design, data interpretation of final approval.	
3	Ghazi Khan Khosa	Introduction, Results data, Interpretation of final approval.	
4	Komal Noor	Literature search, Discussion of final approval.	