

Hypothyroidism in Children with Celiac Disease: A study at Tertiary Care Hospital

SULEMAN¹, RABIA BASHIR², HAFIZ MUHAMMAD SHEHZAD SHUJA³, AMNA WAJDAN⁴, SARA RUBAB⁵, MUHAMMAD AZAM KHAN⁶

¹Assistant Prof. Paediatric Medicine, Nishtar Medical University/ Hospital, Multan

²Assistant Prof. Paediatric Medicine, Nishtar Medical University/ Hospital, Multan

³PGR, Paediatric Medicine, Nishtar Medical University/ Hospital, Multan

⁴Assistant Prof. Paediatric Medicine Nishtar Medical University/ Hospital, Multan

⁵Senior Registrar, Paediatric Medicine, Nishtar Medical University/ Hospital, Multan

⁶Associate Prof. Paediatric Medicine, Nishtar Medical University/ Hospital, Multan

Correspondence to Dr. Rabia Bashir, Assistant Prof. Paediatric Medicine

ABSTRACT

Aim: Hypothyroidism in children with celiac disease in a tertiary care hospital.

Design of study: It is a cross-sectional research in Pediatric Medicine, Nishtar Hospital Multan for six months i.e., 01-07-2019 to 31-12-2019

Methodology: A total of 91 Children having celiac disease were selected and blood was taken for serum TSH, T₃ and T₄ levels. All the data was analyzed using SPSS-20.

Results: In 91 children, 39(42.9%) were males and 52(57.1%) were females. Mean age was calculated as 6.34±2.14 years. Mean T₃, mean T₄ and mean TSH were 87.2±24.8ng/dl, 5.4±1.7 µg/dl and 3.5±1.1 IU/ml respectively. In this study, hypothyroidism was in 38 (41.8%) children.

Conclusion: There are significantly increased cases of hypothyroidism in children with celiac disease. Hypothyroidism was also associated with age significantly.

Keywords: Frequency, Celiac disease, hypothyroidism

INTRODUCTION

There are many autoimmune disorders and celiac disease is one of them. In its pathogenesis, It is considered to be an immune response against gluten in susceptible individuals^{1,2}. In 1953, the importance of the gluten in the origin of this disorder is established³. Mechanism of celiac disease is gluten ingestion thus leading to intestinal abnormality which causes abnormal absorption of nutrients^{4, 5}. Due to broad manifestations, celiac disease may be named as a syndrome. Celiac disease has peculiar features as compared to other autoimmune disorders e.g. complete recovery of the damaged mucosa with a total gluten- free diet⁶.

METHODOLOGY

It is cross-sectional study in Paediatric Deptt. Nishtar Hospital Multan for six months duration i.e. 01-07-2019 to 31-12-2019. Sample size was 91 cases which has been calculated by using following formula; $n = z^2 pq / d^2$ ($z = 1.96$, $p = 37.6\%$ (frequency of hypothyroidism in CD), $q = 00-p$, $d = 10\%$)

Sampling technique: Non-probability consecutive sampling

Inclusion Criteria: Both sexes were included with age ranging from 2-12 years. All the children were with celiac disease and duration of >1 month.

Exclusion Criteria: Children with mental disorders, malignancies, growth retardation were excluded from the study.

Data collection procedure; All the patients who meet inclusion as well as exclusion criteria were taken from OPD of Nishtar Hospital, Multan. Informed consent was taken from the parents. Children with celiac disease were enrolled and blood was drawn and serum TSH, T₃ and T₄ levels were performed. P value < 0.05 was considered as significant.

RESULTS

The detail of results is given in tables 1, 2, 3

Table 1: Gender Distribution.

Gender	n=	%age
Male	39	42.9
Female	52	57.1
Total	91	100

Table 2: Age wise distribution

Age (yrs)	n=	%age
Up to 7 Years	63	69.2
> 7 Years	28	30.8
Total	91	100

Table 3: Hypothyroidism in study group

Hypothyroidism	n=	%age
Yes	38	41.8
No	53	58.2
Total	91	100

DISCUSSION

In 91 cases, 39(42.9%) were males while 52(57.1%) were females. A study showed 60% females⁹. This study is consistent with our study. In another study¹⁰, M:F ratio is 1:1.2 in children with celiac disease which is in accordance to our study. Mean age of our study was 6.34±2.14 years.

Received on 07-10-2020

Accepted on 07-01-2021

In a study⁹ mean age was 6.4±2.8 years in celiac disease children. This is in accordance with our study. In another study, it is reported that mean age was 6.67±3.35 years¹¹ which is consistent with our study.

In our study, Hypothyroidism was seen in 38(41.8%) cases. In one study, 37.6% children were with hypothyroidism having celiac disease⁷. This is in accordance with our study. Another research showed 41.1% cases with hypothyroidism in children with celiac disease⁸. This study is in accordance with our study.

CONCLUSION

There are significantly increased cases of hypothyroidism in children with celiac disease. Hypothyroidism was also associated with age significantly.

REFERENCES

1. Lebwohl B, Ludvigsson JF, Green PH. Celiac disease and non-celiac gluten sensitivity. *JAMA*. 2017 Aug 15;318(7):647-56.
2. Leonard MM, Sapone A, Catassi C. Celiac disease and nonceliac gluten sensitivity: a review. *BMJ*. 2015 Oct 5;351:h4347. doi: 10.1136/bmj.h4347.
3. Elli L, Branchi F, Tomba C et al. Diagnosis of gluten related disorders: Celiac disease, wheat allergy and non-celiac gluten sensitivity. *World J Gastroenterol*. 2015;21:7110–19.
4. Green PH, Lebwohl B, Greywoode R. Celiac disease. *J Allergy Clin Immunol*. 2015;135:1099–1106.
5. Jeon MK, Klaus C, Kaemmerer E. Intestinal barrier: molecular pathways and modifiers. *World J Gastrointest Pathophysiol*. 2013;4:94–99.
6. Parzanese I, Qehajaj D, Patrinicola F et al. Celiac disease: From pathophysiology to treatment. *World J Gastrointest Pathophysiol*. 2017;8(2):27-38.
7. Forchielli M, Collina A, Zannarini L. Celiac disease and thyroid abnormalities: another possible association. *J Pediatr Gastroenterol Nutr*. 2000;31:S63.
8. Kowalska E, Wasowska-Krolikowska K Toporowska-Kowalska E. Estimation of antithyroid antibodies occurrence in children with coeliac disease. *Med Sci Monit*. 2000;6:719-21.
9. Babar MI, Ahmad I, Rao MSet al. Celiac disease and celiac crisis in children. *J Coll Physicians Surg Pak*. 2011;21(8):487-90.
10. Alvi MY, Abbas M, Ahmed M et al. Clinical presentation of celiac disease in children. *Pak J Med Health Sci*. 2010;4(4):552-4.
11. Hashmi MA, Hussain T, Masood N et al. Diarrheal Versus Non-diarrheal Presentations of Paediatric Celiac Disease. *J Coll Physicians Surg Pak*. 2016;26(8):662-6.