



Association Between Systemic Immune-Inflammation Index and Gluten-Free Diet in Pediatric Celiac Patients

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INTRODUCTION

INTRODUCTION

CELIAC DISEASE

- Chronic, autoimmune and inflammatory disease with an incidence of 0.5 to 1% in the general population.
- Pathogenesis includes HLA genes, tissue transglutaminase autoantibody (anti-tTGA), endomysium antibody (EMA), environmental factors and the dissension between T cells and the adaptive immune system.

INTRODUCTION

CELIAC DISEASE

Gastrointestinal symptoms

- Persistent diarrhea
- Abdominal bloating/distension
- Poor weight gain/weight loss
- Abdominal pain
- Constipation
- Vomiting

Extraintestinal manifestations

- Chronic fatigue
- Arthritis or arthralgias
- Pubertal delay
- Iron deficiency anemia
- Recurrent aphthous stomatitis
- Osteopenia, or fracture

INTRODUCTION

CELIAC DISEASE

- The gold standard diagnosis of CD is the biopsy of small bowel by histopathologically in terms of intraepithelial lymphocyte infiltration, crypt hyperplasia and villous atrophy (Marsh classification).
- The treatment is a lifelong strict gluten-free diet.

INTRODUCTION

INFLAMMATION PARAMETERS

- NLR: Neutrophil-to-Lymphocyte ratio
- PLR: Platelet-to-lymphocyte ratio
- MPR: Mean platelet volume-to-platelet ratio
- **The systemic immune inflammation index (SII):**

Neutrophil Counts x Platelet Counts

Lymphocyte Counts

INTRODUCTION

SYSTEMIC IMMUNE INFLAMMATION INDEX (SII)

- SII is an integrated marker that might be able to indicate immune and inflammatory status better than these markers alone.
- This index was used to reflect inflammation status and as a prognostic marker of various diseases such as numerous cancer and psoriatic arthritis.

INTRODUCTION

AIM

Inflammation Parameters in Celiac Disease at Diagnosis and After Diet

	NLR	SII	PLR	MPR	NLR
Uslu (2021)	+				
Çakır (2017)	+	+	+	+	
Arslan (2019)	+		+		
Ağın (2021)	-				+

Blue color refers to diagnosis and red color refers to after gluten-free diet.

INTRODUCTION

AIM

- To examine SII, NLR, PLR and MPR values before diagnosis and under a gluten-free diet in children with celiac disease, and to investigate the correlation between the anti-tTG and anti-endomysium antibody (EMA) and SII, NLR, PLR before and under diet.

MATERIAL & METHOD

METHOD

- Ethics Committee Approval (May, 2022)
- Total of 68 newly-diagnosed participants applied to the Pediatric Gastroenterology of Bezmialem University Medical Faculty Hospital. (March, 2020- February, 2022 retrospectively)

METHOD

- Varies (at diagnosis and after 6 months gluten-free diet)
 - ▶ Current inflammation parameters (NLR, PLR, MPR, SII)
 - ▶ anti-tTGA, anti-endomysium antibody (EMA)
 - ▶ Hemoglobin (Hb)

METHOD

- IBM SPSS Statistics 22.0 (SPSS® Inc.)
- Wilcoxon signed ranks test
- Spearman's rank correlation test
- Significance threshold is $p < 0.05$.

RESULTS

RESULTS

Significant changes of the varies between at diagnosis and after the diet

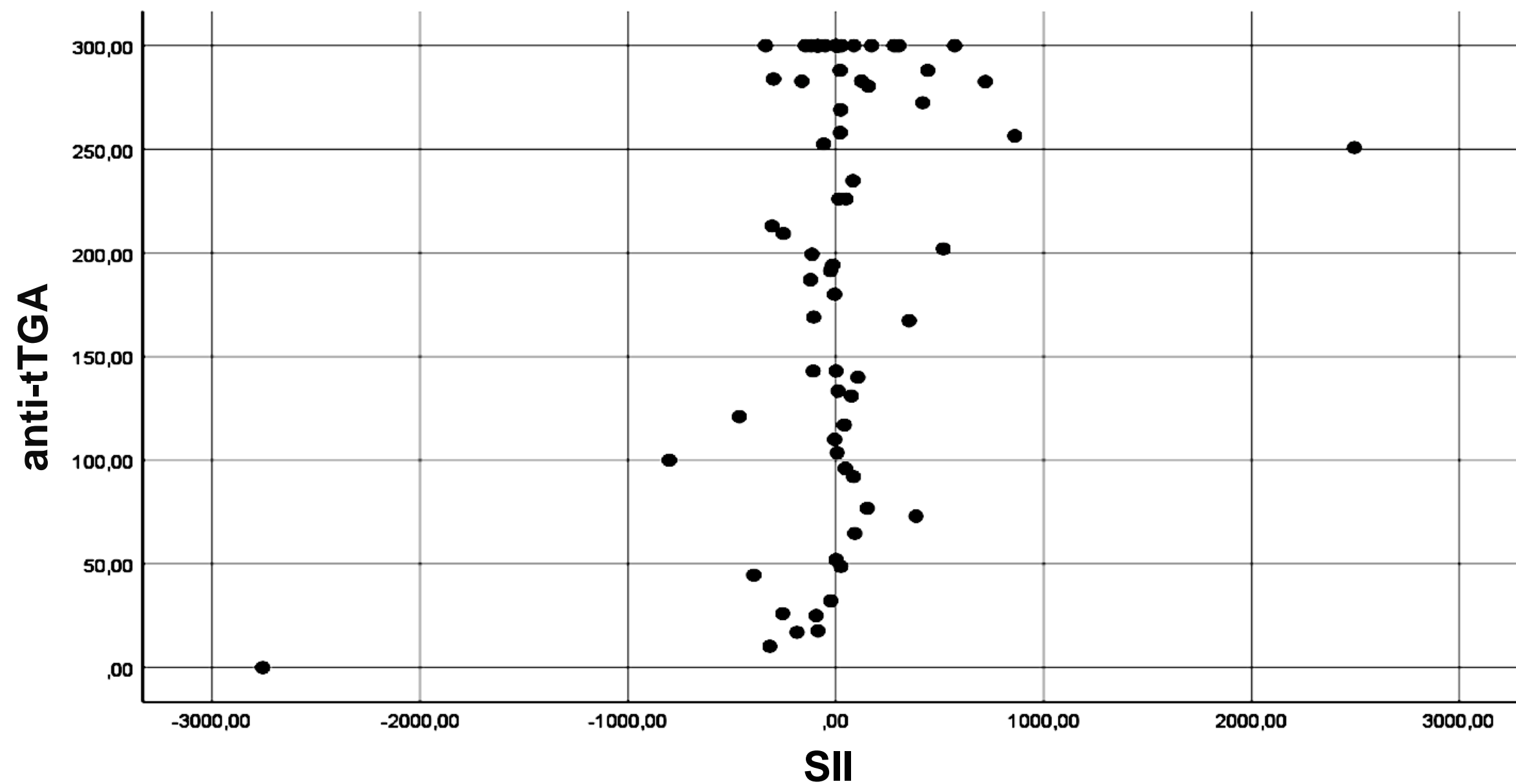
Variations	at Diagnose	After the Diet	p value
Hb	11,94 ± 1,33	12,53 ± 1,3	0,001
	12(11.43-12.68)	12.33(11.68-13.2)	
MPR	0,02 ± 0,01	0,16 ± 1,04	<0,001
	0.03(0.02-0.04)	0.03(0.02-0.04)	
anti-tTGA	225,18 ± 95,35	33,67 ± 68,17	<0,001
	288(143-300)	0(0-24.6)	
EMA	3,38 ± 1,14	0,71 ± 1,34	<0,001
	4(3-4)	0(0-1)	

Each line divided into two sections as 'mean±SD' and 'median(Q1-Q3)'.

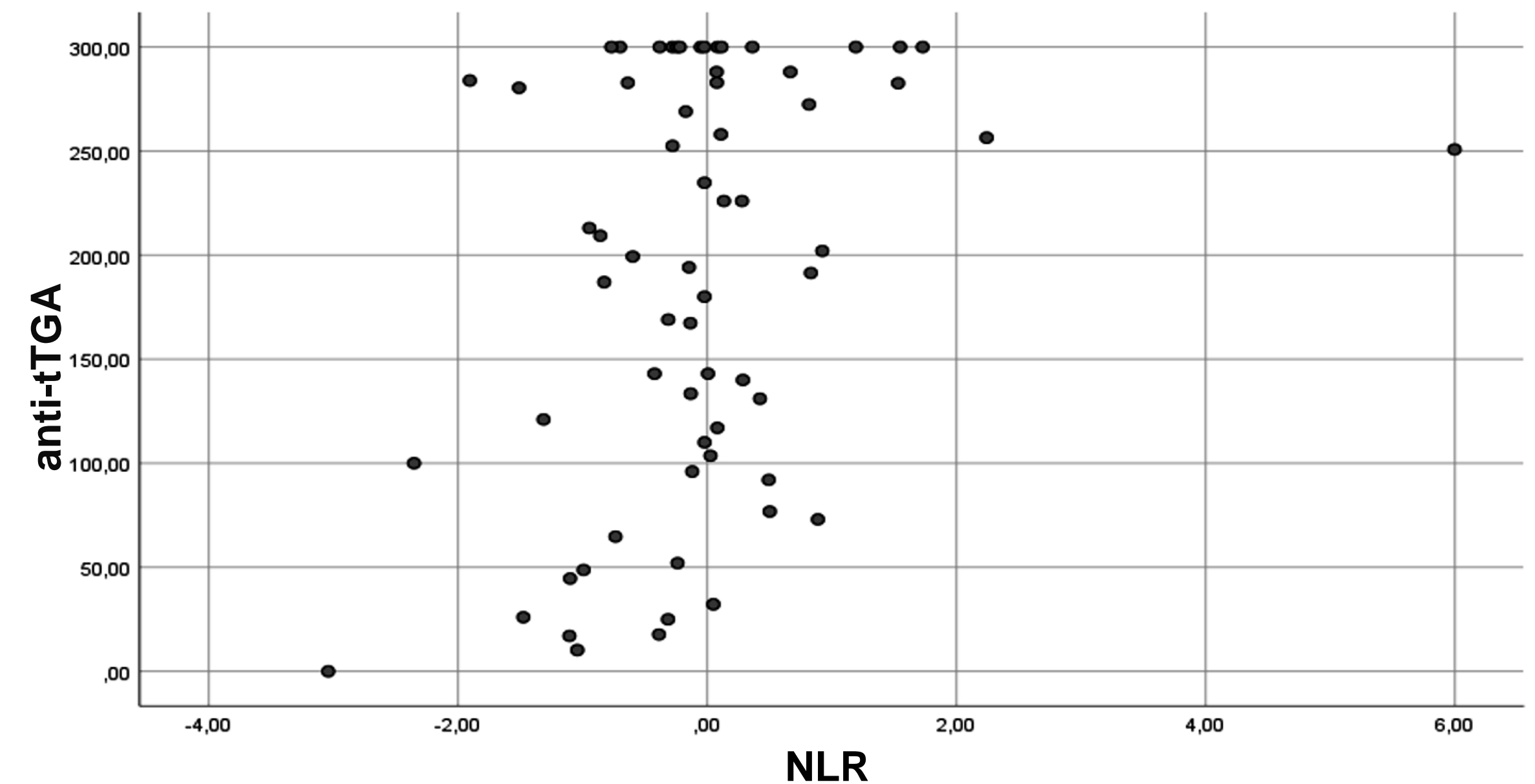
RESULTS

- The correlation between anti-tTGA and SII was found significant ($r=0.248$, $p=0.46$). (*Graphic 1*)
- The correlation between anti-tTGA and NLR was found significant ($r=0.303$, $p=0.014$). (*Graphic 2*)

Graphic 1

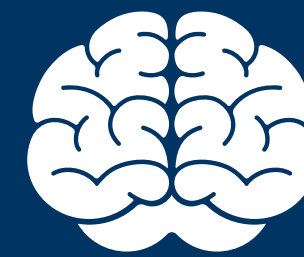


Graphic 2



- The correlation between SII and NLR, PLR were also observed as statistically significant ($p<0.01$).

CONCLUSION



CONCLUSION

- In conclusion, we confirmed that Celiac antibodies and SII have a significant correlation.
- Thus, SII might be a follow-up marker for pediatric CD. However, further studies are needed to elucidate SII variation.
- **Limitations:**
 - ▶ Retrospective single center study
 - ▶ Co-diseases of the patients
- To the best of our knowledge, this is the first study analyzed the follow-up marker value of SII in pediatric CD patients.

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ANY QUESTION?

**THANK YOU FOR YOUR
ATTENTION**

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