

to gluten [1-4]. CD has a prevalence of approximately 1% of the population. But, it is estimated that up to 90% are undiagnosed due to subclinical presentations [5]. Also, diverse clinical manifestations can lead to delays in diagnosis [4]. Laboratory indices and biomarkers used in daily general medical practice are important in detecting new cases of CD, otherwise a delayed diagnosis can lead to development of important complications such as osteoporosis [6-9]. Neutrophil-to-lymphocyte ratio (NLR) was introduced as a useful index for diagnosis or prognosis of different diseases [7]. We hypothesized that NLR might change in patients with CD as an inflammatory disease. Blood count changes such as anemia, leukopenia are well-known but there is no data for NLR in CD [8,9]. In this regard, we prospectively checked the diagnostic role of the NLR in 76 patients with CD (M:26, F:50) at the time of diagnosis. Diagnosis of study patients was based on celiac antibodies (anti-gliadin, anti-endomysium and tissue transglutaminase), and duodenal biopsy [1,10]. Eighty-six patients with functional dyspepsia (M:33, F:53), all of whom had a normal complete blood cell count, C-reactive protein (CRP), and negative serology for anti-gliadin and anti-endomysium antibodies were recruited as control group. Statistical analyses were performed using SPSS version 17.0. Chi-square test was used for comparison of categorical variables. A P-value <0.05 was considered statistically significant. The Receiver Operating Characteristics (ROC) curve analysis was carried out to indicate the sensitivity and specificity of NLR and its respective optimal cut-off value for predicting CD. Mean ages of groups were 38.5 ± 12.11 years in CD patients and 36.5 ± 12.2 years in controls ($P > 0.05$). NLR was significantly higher in patients with CD (2.42 ± 1.24) when compared to control group (1.92 ± 0.58) ($P < 0.019$). The success of NLR in diagnosing CD was statistically remarkable when tested with ROC analysis (Fig. 1). The cut-off value of NLR was 2.32. According to this cut-off value, sensitivity was 80% and specificity 41%.

Neutrophil-to-lymphocyte ratio as a sensitive marker in diagnosis of celiac disease

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Celiac disease (CD) is a small intestinal mucosal disease leading to malabsorption due to inflammatory reaction

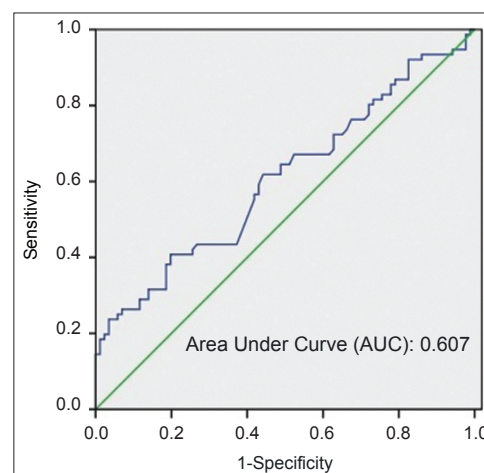


Figure 1 The receiver-operating characteristic curve of neutrophil-to-lymphocyte ratio for predicting celiac disease

Neutrophils and lymphocytes are the cells that play a major role in inflammatory processes. Therefore, counts of neutrophils and lymphocytes temporarily change in inflammation. Cellular immunity obviously plays a major role in intestinal damage in CD [1,2,8]. The main pathogenesis of CD is believed to be related to a gluten-specific T-lymphocyte-mediated response resulting in an overexpression of interferon- γ in the epithelial compartment [1]. Inflammation is not confined to duodenum but also involves other gastrointestinal mucosa. Accordingly, surface lymphocytic infiltration of the stomach and colon can also be seen [9]. NLR change seems to be linked with this inflammation and cytokines. In conclusion, NLR might be used as a sensitive laboratory index in screening and diagnosis of CD.

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Conflict of Interest: None

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