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Neutrophil to lymphocyte ratio: Predictive marker for assessing the severity of ulcerative colitis?

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Abstract

Introduction: Several markers are proposed along the time to assess the severity and therefore the progression of inflammatory bowel disease (UC) but they're expensive and a few of them not specific for intestinal inflammation. Thus, new simpler and cheaper tools are required to guage the severity of the disease. The aim of our study was to judge the contribution of the neutrophil/ lymphocyte ratio (NLR) for assessing the severity of UC. Patients and Methods: We performed a retrospective study over a 5 year period (January 2012- December 2016), including 68 UC patients, from ambulatory or hospitalized, divided into two groups: the primary group of 23 patients (33.8%) with active disease and also the second group of 45 patients (66.2%) of inactive UC. Disease activity was assessed using the Mayo score and therefore the data was statistically analyzed using SPSS20. Results: Mean age of patients was 39 years (19-78 yrs). Female-male ratio was 0.78 and therefore the average disease duration was 8 years. Seven cases (10.3%) were diagnosed with pancolitis. Of the 23 patients with active UC, 14 patients had mild to moderate disease and 9 patients had a severe form. In patients with inactive disease, average NLR was 2.36 (0.79 to 10.84), while in patients with active UC average NLR was 4.28 (2.18 to 11.59) with a major difference ($p < 0.01$). No significant NLR variations were observed between the patients with mild to moderate disease and people with severe forms. Conclusion: In our study, NLR was significantly higher within the cases of active UC. this will be a useful marker within the assessing and follow from the UC activity, without giving information on the disease severity. Key words: inflammatory bowel disease, neutrophils/lymphocytes.

Ulcerative colitis (UC) may be a chronic disease causing continuous mucosal inflammation with an unknown precise etiology . it's called an incurable disease with patients usually requiring lifelong medication. Although the event of biologic agents has led to new therapeutic options in recent years, surgery continues to play a very important role within the therapeutic alternative approach in severe UC . it's important to see disease activity early as this may significantly reduce the surgery rate, and so reduce mortality in patients with serious UC. Noninvasive markers, like C-reactive protein (CRP), erythrocyte rate (ESR), white blood cells (WBCs), fecal calprotectin, and polymorphonuclear neutrophil elastase are widely acknowledged as important, both for initial diagnosis and for precisely monitoring disease activity in UC. Nevertheless, an optimal test has not yet been developed. Therefore, the adjunctive use of additional serum markers may add a big advantage for predicting disease severity and achieving diagnostic precision.Blood neutrophil-to-lymphocyte (N/L) ratio may be a simple marker of subclinical inflammation which will be easily obtained from the differential WBC count. The N/L ratio has been accustomed predict outcomes in patients with cancer and arteria disease. we will obtain information about two different immune pathways from the N/L ratio. First of all about the neutrophils that are chargeable for lasting inflammation and therefore the second about the lymphocytes that demonstrate the regulatory pathway.Thus, the N/L ratio is an indicator of the general inflammatory status of the body, and an alteration in N/L ratio is also found in UC patients with active disease. The aims of this study were to research the utility of N/L ratio as a straightforward and readily available predictor for clinical disease activity in UC and also to work out the association between N/L ratio with the disease widespread and endoscopic severity.

Endoscopic examination, histologic findings, and radiological imaging modalities are commonly accustomed monitor intestinal inflammation. a good number of methods have also been assessed in numerous studies as potential noninvasive/invasive markers for UC diagnosis and for determining disease activity. Although novel disease specific biomarkers are identified, most of them are time consuming and expensive. Unfortunately the role of N/L ratio in UC has not been clearly elucidated til now.Elevated levels of N/L ratio were also found to be related to poor survival in patients after percutaneous coronary intervention and in those undergoing artery bypass graft. Many cancer survival studies have suggested that the N/L ratio may be a significant predictor of overall and disease specific survival of patients. The N/L ratio is correlated with disease severity in patients with nonalcoholic liver disease disease . it's superior to total WBC in predicting adverse outcomes of acute pancreatitis . N/L ratio might be a crucial measure of systemic inflammation because it is cost effective, readily available, and may be calculated easily. During the preparation of this text, a study was concluded that patients with active UC have elevated N/L ratios almost like our findings.

Torun et al. found optimum cut-off value of two.16 to point active disease with a better sensitivity, specificity, positive predictive, and negative predictive value of 81.8%, 80.5%, 86.8%, and 73.8%, respectively . Moreover from Torun et al., within the present study, we evaluated the relation of N/L ratio with the disease extension and also the endoscopic disease activity and failed to find any significant association. thanks to the dearth of detailed knowledge, the present study was conducted to analyze the N/L ratio as a measure of systemic inflammation and its relationship with disease activity. Our study showed that N/L ratio is higher in patients with active UC compared with controls and UC patients inactive.In summary, our study demonstrates that in patients with UC, the N/L ratio is strongly related to active disease. Unlike many other noninvasive markers of UC, the N/L ratio is inexpensive and readily available. Although the accuracy of the N/L ratio for detecting active UC is suboptimal, the ratio is an easily derived measure that may, together with other markers, assist in identifying patients at increased risk of active and severe disease. Future studies are needed to externally cross-validate our findings during a larger cohort of UC patients.

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