SUMMARY

Baseline Hematologic Parameters Influencing Outcomes in Patients with Locally Advanced Rectal Cancer

***Aim of the study**:* The link between the blood count and a systemic inflammatory response (SIR) is indisputable and well described. Pretreatment hematological parameters may predict the overall clinical outcomes in many types of cancer. Thus, this study aims to systematically evaluate the relationship between baseline blood count levels and treatment response in rectal cancer patients treated with neoadjuvant chemoradiotherapy.

Patients and methods: From 2009–2015, 173 patients with locally advanced rectal cancer were retrospectively enrolled in the study and analyzed. The baseline blood count was recorded in all patients 1 week before chemoradiation. Tumor response was evaluated through pathologic findings. Blood count levels which included RBC (red blood cells), Hb (hemoglobin), PLT (platelet count), neutrophil count, WBC (white blood cells), NLR (neutrophil-to-lymphocyte ratio), and PLR (platelet-to-lymphocyte ratio) were analyzed in relation to tumor downstaging, pCR (pathologic complete response), OS (overall survival), and DFS (disease-free survival).

Results: Hb levels were associated with a response in logistic regression analysis: pCR ($p = 0.05$; OR 1.04, 95% CI 1.00–1.07); T downstaging ($p = 0.006$; OR 1.03, 95% CI 1.01–1.05); N downstaging ($p = 0.09$; OR 1.02, 95% CI 1.00–1.04); T or N downstaging ($p = 0.007$; OR 1.04, 95% CI 1.01–1.07); T and N downstaging ($p = 0.02$; OR 1.02, 95% CI 1.00–1.04); Hb and RBC were the most significant parameters influencing OS; PLT was a negative prognostic factor for OS and DFS ($p = 0.008$ for OS); an NLR value of 2.8 was associated with the greatest significance for OS ($p = 0.03$) and primary tumor downstaging ($p = 0.02$).

Conclusion: Knowledge of pretreatment hematological parameters appears to be an important predictive factor influencing tumor response and prognosis of patients with rectal cancer treated primary with neoadjuvant chemoradiotherapy followed by total mesorectal excision.