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The Importance of Systemic Inflammation Markers in the Survival of Patients with Complicated Colorectal Cancer, Operated in Emergency

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Abstract

Introduction: The inflammatory response plays a critical role in carcinogenesis. There are recent scores based on the systemic inflammatory response, such as neutrophil/lymphocyte ratio (NLR), platelet/lymphocyte ratio (PLR), lymphocyte/monocyte ratio (LMR), which have been shown to have prognostic value in cancer patients. These scores allow the identification of patients who will have poor response to treatment and poor survival. The aim of this study is to evaluate the prognostic role of NLR, PLR, LMR and PNI in terms of long-term survival in patients with colorectal cancer, operated in emergency.

Material and Methods: We included 391 patients admitted and operated for complicated colorectal cancer in the Surgery II clinic of the Clinical Emergency County Hospital "Sf. Ap. Andrei " from Galati, between 2008-2017. We analyzed the paraclinical factors of systemic inflammation NLR, PLR, MRL and PNI. As prognostic factors, survival curves were analyzed.

Results: The high values of NLR and PLR increased the risk of death (HR = 7.581, 95% CI = (6.358,9.039), p value = 0.000000, respectively HR = 1.043, 95% CI = (1.039, 1.047), p value = 0.000000), and the increased values of LMR and PNI led to the decrease of this risk (HR = 0.069, 95% CI = (0.054.0.090), p value = 0.000000, respectively HR = 0.758, 95 % CI = (0.730.0.788), p value = 0.000000). In the multivariate regression analysis, the increase of PLR resulted in an increase in the risk of death (HR = 1.024, 95% CI = (1.019.1.029), p value = 0.000000), and for the LMR and PNI, a reduction of the risk of death (HR = 0.353, 95% CI = (0.248.0.504), p value = 0.000000, respectively HR = 0.852, 95% CI = (0.822.0.883), p value = 0.000000).

Conclusions: The univariate analysis showed that NLR and PLR are risk factors, and LMR and PNI are protective factors in terms of survival. The multivariate analysis revealed that PLR is an independent risk factor, and LMR and PNI were independent protection factors.

Key words: colorectal cancer, emergency, inflammation markers, survival