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The Influence of Neoadjuvant Treatment on the Number of Lymph Nodes on the Surgical Specimen in Mid and Low Rectal Cancer - A Retrospective Single-Centre Study

Dragoș-Viorel Scripcariu[1,2], Gianina-Vanda Moraru[1,2], Ionuț Huțanu[1,2], Bogdan Filip[1,2], Mihaela-Mădălina Gavrilescu[1,2], Ana-Maria Mușină[1,2], Mihaela Buna-Arvinte[1,2], Maria-Gabriela Aniței[1,2], Dan Ferariu[3], Mihaela Moscalu[4], Viorel Scripcariu[1,2]
[1]Surgery Department, "Grigore T Popa"University of Medicine and Pharmacy, Iași, Romania
[2]1st Surgical Oncology Unit, Regional Institute of Oncology, Iași, Romania
[3]Pathology Department, Regional Institute of Oncology, Iași, Romania
[4]Department of Preventive Medicine and Interdisciplinarity, Medical Informatics and Biostatistics, "Grigore T. Popa" University of Medicine and Pharmacy

Abstract
Introduction: In this study, we aim to identify the impact of neoadjuvant radiation treatment upon the number of harvested and positive lymph nodes in the surgical specimen; in addition, we tried to identify the impact of chemotherapy in association with radiotherapy on said structures.
Patients and methods: In the study we included patients treated for rectal cancer within a single oncologic surgical Unit serving the north-eastern part of Romania, over a period of 5 and a half years, between May 2013 and April 2018. Firstly, we compared pathologic lymph node status to pretherapeutic staging. Secondly, we compared lymph node values in relation to the treatment scheme.
Results: There was a total of 498 patients treated radically through open surgery for low and mid rectal cancer. We saw a decrease in N staging in 218 cases, 65 remaining stationary and 10 increasing their lymph node staging on the surgical specimen. We identified significant differences between the total number of lymph nodes (17.4 vs 24.2, $p<0.001$), the number of positive lymph nodes (1.4 vs 3.4, $p<0.001$) and the ratio between positive and total lymph nodes (0.08 vs 0.14, $p<0.001$) in patients with and without neoadjuvant treatment respectively. However, there was no statistical difference between patients with and without chemotherapy associated to radiotherapy in the neoadjuvant treatment plan ($p=0.539$, $p=0.58$, $p=0.575$).
Conclusion: This study shows there are significant variations according to the application of neo-adjuvant treatment, between the numbers of positive and total lymph nodes, as well as the positive/total lymph node ratio.
Key words: rectal cancer, lymph nodes, neoadjuvant treatment