Introduction & Objectives: Bladder cancer was the fourth most common cancer in Europe, and the eight more lethal in 2020. Neoadjuvant chemotherapy, in muscle invasive bladder cancer (MIBC), was associated with an improved overall survival (OS) and disease-free survival (DFS). The standard neoadjuvant treatment is cisplatin and gemcitabine, and recently it was demonstrated the superiority of dose-dense methotrexate, vinblastine, doxorubicin and cisplatin (ddMVAC) in response rate and DFS in fit patients. Some studies had assessed the importance of pretreatment neutrophil to lymphocyte ratio (NLR) in treatment outcome, in various tumors types. A multicenter study had identified a RNL >3 as an independent risk factor for disease recurrence and mortality for upper tract urothelial carcinoma. This study aims to evaluate the characteristic of MIBC patients that undergone neoadjuvant chemotherapy, and to validate RNL as a predictor of outcome (OS and DSF).

Materials & Methods: Single center retrospective analysis of MIBC patients that undergone neoadjuvant chemotherapy from 2013 to 2019. Clinicopathological features assessed by medical records. A cut-off value of 3 was defined for NLR. Kaplan-Meier curves and Log Rank test used for survival analyses, and multivariate analyses. P-value reported was two-sided, and tests were conducted at the 0.05 significance level, SPSS®20.

Results: Fifteen patients were included, median follow-up of 58 months. All were male and had ECOG-performance status of 0-1. Median age at diagnosis was 60-years (51-70). 20% (n=3) were smokers, 33% (n=5) had diabetes. Regarding clinical stage: 67% (n=10) had a T2, and 33% (n=5) a T3-T4; and 13% had nodal involvement. RNL ≥3 in 26.7% (n=4). Neoadjuvant chemotherapy scheme was cisplatin gemcitabine in all patients. 87% (n=13) underwent surgery, with a median time from chemotherapy to surgery of 19 weeks. 27% had pathological complete response. Median DFS was 34 months (24.2-43.7), and OS was 61.9 months (47.9-75.9). In early stage T2, DFS was superior to T3-T4 (61.7 months versus 21 months, p=.003). RNL <3 was associated with an improved DFS (63.1 months versus 20 months, p=.001) and OS (Not reached, p=.018) when compared to RNL ≥3. All patients with RNL <3, were alive at the end of the study.

Conclusions: Elevated RNL was associated with poor outcome in this study population. The RNL cut-off value of 3 seems appropriated in MIBC. It needs to be clarified whether tumors with high RNL are chemoresistant, or whether this poor outcome can be improved by an intensification of chemotherapy regimen. This would help to address the best treatment to these patients, either by an upfront surgery or an intensified neoadjuvant treatment, such as ddMVAC.