

**BLADDER CANCER**  
**HIGH PRECYSTECTOMY**  
**NLR, INCREASED RISK**

Presurgery neutrophil-to-lymphocyte ratio (NLR) is associated with adverse pathological and survival outcomes after cystectomy, according to new research from Matthew Tollefson and colleagues at the Mayo Clinic in Rochester, USA.

Radical cystectomy is an aggressive treatment option for patients with high-risk non-muscle-invasive or muscle-invasive bladder cancer, with variable outcomes; data suggest 5-year survival rates of 26–64% for patients with locally advanced disease. Accordingly, researchers are exploring new ways of risk stratification, in the hope of identifying appropriate candidates for neoadjuvant therapy.

NLR is a cheap, easily measured marker of systemic inflammation that has been associated with outcome in other cancers, and preliminary data suggests an association for bladder cancer. Tollefson and colleagues have expanded upon the existing small studies by evaluating the relationship between NLR and survival outcomes in a large cohort of 899 patients who underwent radical cystectomy at their institution, with a median postoperative follow-up period of 10.9 years.

On multivariate analysis, they found that patients with an elevated NLR ( $\geq 2.7$ ) were more likely to have extravesical tumour extension (odds ratio [OR] 1.07) and lymph node involvement (OR 1.09) than those with lower NLR. Elevated preoperative NLR was also associated with a significantly increased risk of tumour recurrence (hazard ratio [HR] 1.04), cancer-specific mortality (HR 1.04) and all-cause mortality (HR 1.03). Specifically, the investigators found that an increase in NLR of 1 unit translated to increased risks of 4%, 4% and 3% of recurrence, cancer-specific mortality and all-cause mortality, respectively.

The mechanisms underlying the association between elevated NLR and outcome are unclear, but Tollefson *et al.* suggest that both an elevated neutrophil-dependent inflammatory reaction and a reduced lymphocyte-mediated immune response might contribute to aggressive disease. Consequently, NLR combines prognostic information for both processes and provides a better prediction of outcome than either measure alone.

**Sarah Payton**

**Original article** Viers, B. R. *et al.* Pretreatment neutrophil-to-lymphocyte ratio is associated with advanced pathologic tumour stage and increased cancer-specific mortality among patients with urothelial carcinoma of the bladder undergoing radical cystectomy. *Eur. Urol.* doi:10.1016/j.eururo.2014.02.042