Editorial Comment

Editorial Comment to High neutrophil-to-lymphocyte ratio predicts poor clinical outcome in patients with castration-resistant prostate cancer treated with docetaxel chemotherapy

In this issue of the International Journal of Urology, Yao et al. explore the role of the neutrophil-to-lymphocyte ratio (NLR) in a retrospective study of 57 Japanese men with metastatic castration-resistant prostate cancer (mCRPC) receiving docetaxel chemotherapy. The authors found that an elevated NLR (≥3.5) was associated with shorter overall survival, progression-free survival and lower prostate-specific antigen (PSA) response rates in this patient population. Although it is a small retrospective cohort, the study was performed well, using multivariate analysis to adjust for known prognostic factors, such as serum albumin, lactate dehydrogenase and metastatic site. The results presented in this study are not novel, but confirm the findings of previous larger studies identifying a prognostic role for NLR in mCRPC. These implications for NLR are not unique for prostate cancer, as it has been shown previously to apply to several solid tumors including colorectal, hepatocellular, renal cell and non-small cell lung cancer. In addition, concordant results were found across both metastatic and non-metastatic cancer.

Another important question is whether NLR might also guide future treatment selection in mCRPC. Although patients with an elevated NLR have a worse prognosis, the PSA response and overall survival benefit when treated with docetaxel or cabazitaxel are still substantial. In contrast, patients with an elevated NLR who were treated with abiraterone showed a PSA of only 16%. These data are derived from retrospective studies and cannot be used for clinical decision-making, but might suggest that patients with an elevated NLR benefit more from chemotherapy as compared with androgen receptor-targeted treatment. Larger prospective studies are required to confirm these findings.

Although the exact mechanism behind the prognostic properties of NLR remains to be elucidated, it has been shown that neutrophils are able to stimulate tumor development, whereas intratumoral lymphocytes are associated with antitumor activity. Thus, an elevated NLR might reflect a worse prognosis. Corticosteroids administered in mCRPC are known to affect the release of neutrophils and lymphocytes in the peripheral blood, and consequently might affect the NLR. Yao et al. confirm previous findings from Lorente et al., showing that NLR predicts survival irrespective of baseline corticosteroids. Taken together, NLR is a marker of host inflammation that reflects the disease burden of an individual patient. In this light, it might serve as a continuous rather than a binominal variable, which is able to aid physicians in estimating the prognosis of an individual patient in clinical practice.

To date, many prognostic factors including serum albumin, hemoglobin and alkaline phosphatase have been identified in mCRPC. NLR has been added to this spectrum as an affordable, readily available, and easy to use biomarker that can assist in risk stratifying patients with mCRPC in daily practice and in clinical trials. Future research should further explore the pathophysiology and potential predictive role of NLR, as well as potential interactions with corticosteroids.

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Conflict of interest

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References


