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AUTHOR'S REPLY

CRP kinetics could be prognostic predictors in urothelial cancer

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We appreciate the letter from Gakis and Stenzl on our Review, which discussed the increasing number of studies that have demonstrated the prognostic impact of C-reactive protein (CRP) as a biomarker on outcome in various malignancies including urothelial cancer.[1] Although, among the urological cancers, the importance of CRP has been investigated most intensively in renal cell carcinoma, the significance of CRP has also been demonstrated in urothelial cancer. As Gakis and Stenzl explained, CRP could have a considerable role in prediction algorithms in patients who undergo radical cystectomy, due to its strong prognostic power.[2] We have also demonstrated a prediction model (nomogram) incorporating CRP in patients with locally advanced and metastatic urothelial cancer.[3] Those results indicated that CRP could be a useful prognostic marker for patients with urothelial cancer in various settings.

Multimodal approaches including radical surgery, perioperative chemotherapy and radiotherapy have been adopted to improve outcomes in urothelial cancer. To provide better treatment strategies for individual patients, the accurate prediction and evaluation of the efficacy of each modality are essential. To this end, CRP has been shown to be prognostic in urothelial cancer patients treated by surgery,[2,4] chemoradiotherapy[5] and systemic chemotherapy.[6] Moreover, CRP has the further potential for the real-time assessment of the disease status with longitudinal measurement. We demonstrated that the longitudinal changes in CRP values—that is, CRP kinetics—were associated with prognosis and survival duration in patients with advanced urothelial cancer who were treated with systemic chemotherapy.[6] In those with muscle-invasive bladder cancer treated with chemoradiotherapy, the decrease of CRP values to within the normal range was associated with better prognoses compared with patients with persistently elevated CRP levels.[5] The real-time assessment of CRP values could enable us to not only better plan treatment strategies using multimodal approaches in individual patients, but also respond faster to failing treatments and change treatment course without delay.

The presence of host systemic inflammatory response is associated with aggressive cancer behaviour and worse outcome. As CRP is a nonspecific inflammatory marker, the elucidation of background mechanisms in the local tumour microenvironment that causes the CRP elevation (and, perhaps, the systemic inflammatory response) is a pressing issue. Understanding these mechanisms should clarify the role of the inflammatory reaction in the progression of cancer and further develop novel anticancer treatments that target cancer-related inflammation.

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Competing interests
The authors declare no competing interests.

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