




ASO Author Reflections: Is Vascular Cell Adhesion Molecule-1 (VCAM-1) a Promising Biomarker in Urothelial Carcinoma of the Bladder?

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PAST

Outcome prediction models for patients with urothelial carcinoma of the bladder (UCB) are less readily available for clinical use, primarily because of their inability to capture the complete potential of host–tumor interactions.¹ Thus, identifying preoperative biomarkers capable of capturing the biological and clinical potential of each tumor variety is crucial for further refinement of risk stratification in patients with UCB.^{2,3} Vascular cell adhesion molecule-1 (VCAM-1) involved in cellular adhesion is closely associated with inflammation, immunological disorders, tumor angiogenesis, and metastasis.⁴ Although VCAM-1 is reportedly associated with oncological outcomes in several tumor varieties,⁴ the predictive and/or prognostic value of blood VCAM-1 remains relatively unexplored in patients with UCB undergoing radical cystectomy (RC).

PRESENT

This consecutive cohort study enrolled 1036 patients with clinically nonmetastatic advanced UCB having undergone RC to investigate the relationship between preoperative plasma VCAM-1 levels and the established features of UCB invasion, metastasis, and survival outcomes.⁵ Beyond multivariable modeling, we used predictive accuracy testing and decision curve analysis (DCA) to assess the value of preoperative VCAM-1 as a biomarker in real-world clinical settings. The results indicate that elevated preoperative VCAM-1 levels were not only associated with worse oncological outcomes but also predicted biologically and clinically aggressive disease. In DCA, the reference models for lymph node metastasis, non-organ-confined disease, recurrence-free survival, and cancer-specific survival prediction resulted in significant improvements after addition of VCAM-1.

FUTURE

This study demonstrates that addition of VCAM-1 improved the discriminatory power of predictive/prognostic models significantly. Therefore, VCAM-1 might be a valuable biomarker in determining the need for perioperative chemotherapy and the extent of lymphadenectomy required. VCAM-1 is associated with ease of procurement, low cost, high sample homogeneity, and potential to

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improve early outcome prediction and prognosis. However, further study is warranted for VCAM-1 to be determined as a candidate biomarker worth integrating into prospective clinical trials to enhance currently available tools used for risk stratification in patients with UCB, and assess its value in the era of immunotherapy.

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DISCLOSURES Shahrokh Shariat owns or co-owns the following patents: Methods to determine prognosis after therapy for prostate cancer. Granted 2002-09-06. Methods to determine prognosis after therapy for bladder cancer. Granted 2003-06-19. Prognostic methods for patients with prostatic disease. Granted 2004-08-05. Soluble Fas: urinary marker for the detection of bladder transitional cell carcinoma. Granted 2010-07-20. He has a consulting or advisory role for the following: Astellas, Astra Zeneca, Bayer, BMS, Cepheid, Ferring, Ipsen, Jansen, Lilly, MSD, Olympus, Pfizer, Pierre Fabre, Roche, Sanochemia, Sanofi, Takeda, Urogen, and Wolff.

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