Tumori, 98: 762-767, 2012

Clinical value of vascular endothelial growth factor and endostatin in urine for diagnosis of bladder cancer

Daye Cheng[1], Bin Liang[2], and Yunhui Li[3]

[1]Department of Transfusion, The First Hospital of China Medical University, Shenyang; [2]High Vocational Technological College, China Medical University, Shenyang; [3]Department of Clinical Laboratory, No. 202 Hospital, Shenyang, PR China

ABSTRACT

Aims and background. The aim of the study was to determine whether urinary VEGF and endostatin predict the presence of bladder cancer, and whether these noninvasive biomarkers provide clinically useful information in the bladder cancer patient as well.

Methods and study design. Voided urine samples were collected from 239 patients (109 bladder cancers, 81 urological disorders, 49 healthy controls). The urine levels of VEGF and endostatin were determined with the sandwich enzyme immunoassay technique.

Results. Urine levels of VEGF and endostatin were higher in patients with bladder cancer than those in patients with urological disorders and healthy controls (P<0.01). The difference between patients with urological disorder and healthy controls was significant only for VEGF (P <0.01). Urine level of VEGF was related to the tumor grade, and urine level of endostatin was related to tumor stage, tumor size and tumor number (P <0.05). The optimal cutoffs for VEGF and endostatin were calculated by the ROC curves as 860 pg/ml for VEGF, and 350 pg/ml for endostatin. The five-year survival rate was 60.0% in patients with low level of endostatin (<350 pg/ml) and 7.69% in patients with high level of endostatin (≥350 pg/ml) in the bladder cancer group. Patients with a high level of endostatin had a shorter survival time, whereas patients with a low level of endostatin had a longer survival time (P <0.05).

Conclusions. Urine levels of VEGF and endostatin may be a clinically useful aid in the diagnosis of bladder cancer, and endostatin but not VEGF is a supplementary prognostic marker for predicting tumor progression.

Key words: bladder cancer, diagnosis, endostatin, urine, vascular endothelial growth factor.

Acknowledgments: We thank Liu Hongbo for help in statistical analysis. The study was supported by Liaoning Natural Science Fund, Liaoning Province, China (Topic No: 201102257).

Correspondence to: Daye Cheng, Department of Transfusion, The First Hospital of China Medical University, China Medical University, North Nanjing Street, No.155, Shenyang 110001, PR China.
Tel +86-24-83283040;
fax +86-24-83283040;
email daye517@yahoo.ca

Received February 15, 2012;
accepted April 23, 2012.