

Diagnostic Evaluation of Urinary Angiogenin (ANG) and Clusterin (CLU) as Biomarker for Bladder Cancer

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Abstract

Bladder carcinoma is an important worldwide health problem. Both cystoscopy and urine cytology used in detecting bladder cancer suffer from drawbacks where cystoscopy is an invasive method and urine cytology shows low sensitivity in low grade tumors. This study validates easier and less time-consuming techniques to evaluate the value of combined use of angiogenin and clusterin in comparison and combination with voided urine cytology in the detection of bladder cancer patients. This study includes malignant (bladder cancer patients, n = 50), benign (n = 20) and healthy (n = 20) groups. The studied groups were subjected to cystoscopic examination, detection of bilharzial antibodies, urine cytology, and estimation of urinary angiogenin and clusterin by ELISA. The overall sensitivity and specificity were 66 and 75 % for angiogenin, 70 and 82.5 % for clusterin and 46 and 80 % for voided urine cytology. Combined sensitivity of voided urine cytology with the two studied biomarkers was 88 % which is higher than the combined sensitivity of both markers alone (82 %) and that of the cytology with each marker (76 and 80 %) for angiogenin and clusterin respectively. In conclusion, combined use of the cytology with the studied biomarkers can improve the sensitivity for detecting bladder cancer, and may be very useful in monitoring the effectiveness of antiangiogenic and apoptotic therapies in bladder cancer.

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