20 Urinary spermine level as an additional prostate cancer diagnostic marker

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Introduction & Objectives: Prostate cancer (PC) is the second leading cause of cancer-related deaths in many countries and it is one of the most common male cancer in the world. Nowadays, PSA (prostate-specific antigen) test is used as a famous blood test for screening of PC. However, PSA test isn't sensitive and specific enough, because its' high levels do not always indicate the presence of a malignant process in the prostate, and low - about its absence. Some studies suggest to use concentration of spermine in the urine as a novel non-invasive biomarker for PC diagnostics.

Materials & Methods: Male patients age 51-79 with prostate cancer (I-IV stage) were enrolled. Diagnoses of all patients were established at the National Cancer Institute (Kyiv, Ukraine). Spermine concentration was determined in the morning urine samples of 30 patients with malignant tumors before treatment, 10 patients with prostate hyperplasia and in 10 healthy men by ELISA kit.

Results: It was found that the concentration of spermine in the urine in patients with prostate cancer was lower in 5-34 times in comparison with healthy men and patients with prostate hyperplasia.

Conclusions: Concentration of spermine in the urine shows potential to serve as a novel PC diagnostic non-invasive marker, which in turn can help to address the limited sensitivity and specificity problem of serum PSA test.