Elevated biomarkers predict risk for prostate cancer recurrence

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A simple blood test screening for a panel of biomarkers can accurately predict whether a patient who has had prostate cancer surgery will have a recurrence or spread of the disease.

Calling their findings a major step forward in prostate cancer care, Texas researchers report in the June 15 issue of *Clinical Cancer Research*, a journal of the American Association for Cancer Research, that the presence of seven of these biomarkers can predict prostate cancer risk with 86.6 percent reliability. This is at least 15 percentage points higher than standard clinical measures currently in use, the researchers say.

"We have been looking at these biomarkers for the past 10 to 15 years in the laboratory, but now we can translate these findings into progress for the individual patient," said Shahrokh F. Shariat, M.D., chief resident in urology at the University of Texas Southwestern Medical Center.

Clinicians need this information to decide whether to take a "watchful waiting" approach with their prostate cancer patients or to move to more aggressive additional therapy such as hormone therapy, chemotherapy or radiation, Shariat says. Urologists currently use a risk predictor that includes variables like stage, Gleason score and serum levels of prostate-specific antigen. "However, this method is only accurate about 70 percent of the time, which is not optimal," Shariat said.

Shariat and colleagues enrolled 423 patients who were surgically treated

for prostate cancer with either radical prostatectomy or bilateral lymphadenectomy.

Using commonly available blood tests, they measured levels of the following seven biomarkers: transforming growth factor-β1, interleukin-6, interleukin-6 soluble receptor, vascular endothelial growth factor, vascular cell adhesion molecule-1, endoglin, urokinase plasminogen activator.

"We reviewed background literature over 60 separate biomarkers and determined that these were the optimal seven that would have predictive value," Shariat said.

Patients were followed for approximately four years, and researchers noted cancer recurrence in 17.7 percent of patients. Elevated levels of the seven biomarkers were associated with increased risk of relapse. For example, the presence of urokinase plasminogen inhibitor-1 increased risk by 37 percent, while the presence of vascular endothelial growth factor increased risk by 47 percent.

The combination of all seven biomarker variables accurately predicted risk 86.6 percent of the time in this study.

"This is a large and unique improvement for patient care. Neither preoperative MRI nor any of the clinical features we have used before even comes close to this level of accuracy," Shariat said.

Source: American Association for Cancer Research