Four Factors Help Predict Prostate Cancer Risk

BY ELIZABETH MECHCATIE

A Dutch study of 5,176 men found four factors to be helpful in predicting a man's risk of developing prostate cancer: serum prostate-specific antigen, a previous negative biopsy of the prostate, family history of prostate cancer, and prostate volume.

"PSA assessments combined with the other common predictive factors may offer a personalized assessment of a man's risk of future prostate cancer," coauthor Monique J. Roobol, Ph.D., said at a briefing before the study's presentation at a symposium on genitourinary cancers.

The men, aged 55-75 years at baseline, were from the Rotterdam section of the European Randomized Study of Screening for Prostate Cancer. They were screened every 4 years for prostate cancer.

Using multivariate modeling, with data on factors at baseline and prostate cancer 4 years later, the investigators determined that PSA "is still the most significant predictor … but there are other factors that also contribute to risk estimation," said Dr. Roobol, an epidemiologist in urologic oncology at Erasmus Medical Center, Rotterdam, the Netherlands.

The average risk of developing biopsy-detectable prostate cancer over 4 years was 5.1% at an average PSA level of 1.5 ng/mL in the study, so men with a serum PSA level above 1.5 ng/mL are at an above-average risk of developing prostate cancer over 4 years—and are at a sevenfold greater risk than are those with levels below this level, Dr. Roobol said.

Other risk factors were found to modify this threshold level: The risk of prostate cancer increases if there is a positive family history of prostate cancer, but decreases with an increasing prostate volume at the same PSA level. Risk also decreases if a man ever had a negative prostate biopsy, she said.

For example, a man with a high serum PSA, a positive family history, a small prostate, and no previous negative biopsy was at a higher than average risk, while a man with a low serum PSA and no additional risk factors was at a very low risk, which increased if he had a positive family history, she explained.

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To illustrate the effect of prostate volume on PSA level (with a volume under 40 cc considered a small prostate), she said a man with a high PSA, no previous negative biopsy, and a small prostate was at a higher than average risk, which would decrease if he had a larger prostate.

Based on these findings, she and her associates concluded that a man with a PSA of 1.3 ng/mL, with no previous negative biopsy, a positive family history, and a prostate volume under 40 cc has a 5% risk of developing prostate cancer within 4 years. However, a man with a previous negative biopsy, no family history, and a large prostate can have a PSA up to 4 ng/mL "before reaching the similar threshold of a 5% risk of prostate cancer within 4 years," Dr. Roobol added.

Using these individualized predictive factors to identify men above certain risk thresholds could make it possible to identify men who "may warrant more frequent screening and vice versa," she said, adding that "active risk-reduction strategies can be applied, if available."

The moderator of the press briefing, Dr. Howard Sandler, chairman of radiation oncology at the Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, Los Angeles, described this approach as "a very sensible method of integrating other factors besides PSA into the complex problem of prostate cancer screening and detection."

The study is in press at the Journal of Urology. Dr. Roobol had no disclosures to report. The annual Genitourinary Cancers Symposium is sponsored by the American Society of Clinical Oncology, American Society for Therapeutic Radiology and Oncology, and Society of Urologic Oncology. ■