

PSA Velocity: A Criterion for Prostate Biopsy?

Adding prostate-specific antigen velocity as a trigger for biopsy did not improve predictive accuracy beyond that of using PSA values alone.

Patient selection for prostate biopsy is typically based on several factors including age, race, prostate-specific antigen (PSA) values (both free and total), and clinical exam. Another criterion for prostate biopsy, as cited in guidelines by the National Comprehensive Cancer Network and the American Urological Association, is high PSA velocity (rate of change of PSA over time), even for men with low absolute PSA values and negative digital rectal exams.

To assess the utility of using PSA velocity values as a basis for recommending prostate cancer biopsies, investigators evaluated 5652 healthy men (≥ 55 with normal digital rectal exam, baseline PSA ≤ 3.0 ng/mL, and no history of prostate cancer) who participated in the control arm of the Prostate Cancer Prevention Trial ([Control Clin Trials 2004; 25:203](#)). Participants were randomly assigned to finasteride or placebo for 7 years and followed with yearly PSA tests. Biopsy was recommended for men with PSA >4.0 ng/mL, and all participants without prostate cancer were asked to undergo an end-of-study biopsy.

Use of a logistic regression model and receiver operating characteristic curve analysis showed that using a PSA value of 4.0 ng/mL as a biopsy trigger ultimately led to biopsy in 1 in 20 men. In contrast, use of guideline-recommended PSA velocity >0.35 ng/mL/year as a trigger ultimately would have led to biopsy in nearly one in seven men. However, use of PSA velocity as a biopsy trigger would not have improved patient outcomes or detection of more-aggressive cancers.

Comment: As noted by editorialists, the failure of PSA velocity to add significant information to the biopsy-decision process might help us further refine the decision-making process regarding PSA screening and the need for prostate biopsy. Unfortunately, it also underscores the limitations of PSA as a screening tool.

— [Robert Dreicer, MD, MS, FACP](#)

Published in [Journal Watch Oncology and Hematology](#) April 12, 2011