

# High pretreatment PSA velocity predicts worse outcome

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The most significant single predictor of aggressive prostate cancer is an elevated rate of increase in prostate specific antigen (PSA) levels, according to a new study. Published in the July 1, 2007 issue of *CANCER*, a peer-reviewed journal of the *American Cancer Society*, the study found that a pre-treatment rate of PSA increase, called PSA velocity, of more than 2 ng/ml/year was strongly associated with a high risk of death from prostate cancer.

Elevated PSA velocity was a stronger poor prognostic factor than any other single high-risk indicator, such as a biopsy Gleason score greater than 7, a PSA level of 10 ng/ml or an advanced disease category.

Prostate cancer is expected to be diagnosed in more than 200,000 American men in the U.S. this year and cause more than 27,000 deaths, the leading cause of cancer death after lung cancer in U.S. men. Most tumors are slow growing and asymptomatic, and the disease affects primarily men over 50 years old. As a result, most men diagnosed with prostate cancer die of other age-related causes.

However, in a significant subset of prostate cancer patients, the cancer will be aggressive and quick enough to cause morbidity and death. Identifying these men is critical to reducing deaths from prostate cancer. Researchers have identified several indicators with the potential to identify high-risk patients and developed various algorithms, using such factors as the microscopic features of the tumor (i.e., Gleason score), size, spread of the disease, and location of disease, to determine prognosis. However, recent trends suggest that these factors are not effective and that better indicators are needed. Calculating PSA velocity has shown promise as a prognostic indicator. Studies suggest that PSA velocity more than 2 ng/ml/year strongly suggests aggressive disease. Understanding its significance after treatment,

particularly relative to other risk factors, is critical to identifying high-risk patients.

Dr. Anthony D'Amico of Boston's Brigham and Women's Hospital and co-investigators characterized PSA velocity significant in prostate cancer-specific mortality (PCSM) rates following treatment with radical prostatectomy (RP) or radiation therapy (RT). Dr. D'Amico reviewed data from 948 men with localized prostate cancer who had one or more high-risk factors.

Dr. D'Amico and his co-authors found that the most important single prognostic factor was PSA velocity. As expected, men who had multiple risk factors died from their disease significantly earlier than those with one factor. Of the men who underwent treatment with RP or RT, 44 percent and 28 percent, respectively, had pre-treatment PSA velocities of > 2 ng/ml/year as their only identified high-risk factor. Of those men who died with only one identified high-risk factor, 88 percent of RP-treated patients and 80 percent of RT-treated patients had pre-treatment PSA velocities of > 2 ng/ml/year.

In identifying this association, the authors also point out that other studies have found that time to death shortens as PSA velocity increases. This suggests that further research should examine using stratified PSA velocities to assess risk in men with localized disease.

"These findings," conclude the authors, "highlight the ability of a pre-treatment PSA velocity > 2 ng/ml/year alone to identify men with aggressive prostate cancer and in whom effective systemic treatment in addition to mono-therapy with RP or RT is needed to decrease PCSM rates."

Source: John Wiley & Sons, Inc.

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