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Nadir PSA Plus Time to Nadir Predict Post-Radiation Prostate Cancer Survival □ □

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ANN ARBOR, Mich., March 17 - The success of external beam radiation for prostate cancer can be predicted by two factors -- speed of treatment response and PSA nadir -- according to a multicenter analysis.

Action Points

Explain to patients who ask that it can take several months to assess the benefit of external beam radiation therapy for localized prostate cancer.

Explain to patients who ask that patients who do not do well with external beam radiation therapy may be candidates for medical and surgical treatments.

In a study of 4,833 patients who received definitive external beam radiation for clinically localized prostate cancer, 75% who achieved a PSA nadir of less than 0.5 ng/mL were free of biochemical and clinical disease at eight years and 97% were free of distant metastases, showed findings in the March 15 issue of the *International Journal of Radiation Oncology Biology Physics*.

A gradual decline to nadir led to the best results, wrote Michael E. Ray, M.D., Ph.D., of the University of Michigan and colleagues from eight other institutions. Biochemical and clinical outcome as well as distant metastasis-free survival were also better among patients in whom PSA nadir was not reached for two years or more after radiation.

Patients who had a rapid decline to nadir did not fare as well, irrespective of the level of nadir, he and colleagues added.

Dr. Ray and colleagues analyzed data from patients treated between 1986 and 1995 for stage T1b-T2cN0-NxM0 prostate cancer. All patients were treated definitively with radiation alone with doses of 60 Gy or more. No patients had neoadjuvant or planned adjuvant androgen suppression.

Endpoints were biochemical or clinical disease-free survival, defined as freedom from PSA failure, initiation of androgen suppression or documented local or distant failure, and distant metastasis-free survival.

A greater nadir PSA following radiation therapy or a shorter time to PSA nadir were both associated with worse outcome, the authors wrote.

Eight-year survival rates were:

75% biochemical and clinical disease-free survival for patients with PSA nadir of less than 0.5 ng/mL and 97% distant metastasis-free survival.

17% biochemical and clinical disease-free survival for patients with PSA nadir of 2.0 ng/mL or higher and 73% distant metastasis-free survival ($P < .0001$ for decreased survival as nadir PSA increases).

A shorter time to nadir was associated with decreased survival, regardless of PSA nadir achieved.

Patients who reached PSA nadir in 24 months or longer had biochemical and clinical survival rates of 75% and a 99% distant metastasis-free survival.

Patients who reached PSA nadir in less than six months had a biochemical and clinical survival rate of 27% and a distant metastasis-free survival rate of 66% ($P < .0001$ for decreased survival with shorter time to nadir PSA).

The authors pointed out that this study represents the largest published study of PSA nadir and time to nadir in this population.

They wrote that the study confirmed the validity of multiple PSA measurements following radiation therapy. "Although [nadir PSA] is a useful prognostic factor, a single [nadir PSA] cut point cannot separate successful from unsuccessful treatment," they concluded.

"No threshold of post-radiation therapy PSA level exists that defines, or is required for, total tumor cell eradication. [Nadir PSA] alone provides valuable prognostic information, but subsequent PSA measurements improve the specificity of the 'biochemical failure' definition."

Primary source: International Journal of Radiation Oncology Biology Physics

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Ray M E et al. "PSA Nadir Predicts Biochemical and Distant Failures After External Beam Radiotherapy for Prostate Cancer: A Multi-Institutional Analysis" Int J Radiation Oncology Biol Phys 2006; 64:1140-1150