

PROSTATE CANCER

Bone scan index—a new imaging biomarker?

Bone scan index (BSI) is an effective quantitative biomarker to determine prognosis in patients with castration-resistant metastatic prostate cancer (CRMPC), according to a new study in the *Journal of Clinical Oncology*.

Bone scintigraphy is commonly used to determine tumor burden in men with CRMPC because most metastases are found within the active bone marrow of the axial skeleton. “The BSI is a means by which bone-scan data can be expressed numerically rather than simply descriptively,” lead investigator Michael Morris told *Nature Reviews Urology*. This ultimately allows researchers to directly compare BSI with PSA levels, a commonly used prognostic index.

Radionuclide bone scans of 88 patients were selected from four clinical trials of antimetabolic chemotherapy and the researchers assessed the prognostic power of BSI and PSA at 3 months and 6 months after initiation of treatment.

When adjusting for PSA, BSI changes were associated with survival at both time points (HR, 2.368; $P=0.012$ and



HR, 2.226; $P=0.002$): as the BSI value increases, the estimated survival time diminishes. However, the reverse relationship was not evident and changes in PSA levels adjusted for BSI did not indicate an improvement in survival. “BSI is more strongly associated with survival than PSA as a post-treatment biomarker,” said Morris. “It captures more information about whether the patient will live or die when compared head-to-head with PSA.”

Efforts to automate reading of bone scans and BSI calculation are underway, aiming to provide clinicians with a quantitative imaging tool that is more closely correlated with survival in patients with CRMPC than PSA.

Mina Razzak

Original article Dennis, E. R. *et al.* Bone scan index: a quantitative treatment response biomarker for castration-resistant metastatic prostate cancer. *J. Clin. Oncol.* doi:10.1200/JCO.2011.36.5791