Tumori, 97: 629-633, 2011

Multi-field-of-view SPECT is superior to whole-body scanning for assessing metastatic bone disease in patients with prostate cancer

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ABSTRACT

Aim. The aim of this study was to compare the diagnostic performance of whole-body bone scintigraphy (WBS) and multi-field-of-view single photon emission tomography (multi-FOV SPECT) with ^{99m}Tc-oxidronate (^{99m}Tc-HDP) in patients with prostate cancer (PCa).

Methods. In a prospective study, WBS and SPECT acquisitions were performed in 194 patients with histologically confirmed PCa and serum prostate-specific antigen (PSA) levels above 10 ng/mL. Scans obtained using the two modalities were interpreted separately. Clinical and biochemical follow-up, radiological studies and biopsies served as benchmarks for the assessments. The impact of PSA level on WBS and SPECT results was also evaluated.

Results. The patient-based sensitivity, specificity, accuracy, PPV and NPV values of SPECT examinations were higher than those of WBS, especially in patients with serum PSA levels <40 ng/mL.

Conclusion. Multi-FOV SPECT proved to be more sensitive and specific than WBS in detecting bone metastases in PCa patients.

Key words: single photon emission tomography, ^{99m}Tc-oxidronate, bone metastases, prostate cancer.

Acknowledgments: The authors are grateful to Ms Catherine Wrenn for her advice and skillful editorial support.

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Received December 17, 2010;
accepted May 13, 2011.