

Differentiation of prostate cancer and benign prostatic hyperplasia: the clinical value of ^{201}Tl SPECT—a pilot study

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Purpose: Thallium-201 (^{201}Tl) is a recognized tumor-imaging agent; however, the usefulness of ^{201}Tl in prostate cancer has not been studied. The purpose of this preliminary study was to evaluate the efficacy of ^{201}Tl single-photon emission computed tomography (SPECT) imaging for differentiating prostate cancer from benign prostatic hyperplasia (BPH). **Methods:** ^{201}Tl pelvic SPECT was performed in 10 patients (aged 64–78 years) with biopsy-proven BPH before transurethral resection of the prostate and 15 patients (aged 65–81 years) with biopsy-proven prostate cancer prior to any therapeutic modality or invasive surgical procedures for treatment of their prostate cancer. **Results:** From the 15 patients with prostate cancer, ^{201}Tl pelvic SPECT detected prostate cancer in 13 (86.7%) but not in 2 (13.3%) patients with Gleason scores of 5 (2 + 3). In contrast, all 10 patients with BPH (100.0%) had negative results of ^{201}Tl pelvic SPECT. **Conclusion:** Our study showed that ^{201}Tl pelvic SPECT scan is very helpful in distinguishing between prostate cancer and BPH.

Key words: prostate cancer, benign prostatic hyperplasia, ^{201}Tl SPECT