CANCER

Well-differentiated thyroid cancer: ^{124}I PET superior to ^{131}I planar imaging

^{124}I PET identifies more foci suggestive of residual thyroid tissue or metastases than ^{131}I planar whole-body imaging in patients with well-differentiated thyroid cancer.

Van Nostrand *et al.* studied 25 patients with well-differentiated thyroid cancer who were suspected of having metastases and who were referred for ^{131}I whole-body dosimetry. The prescribed activity of imaging studies were 37–74 MBq for ^{131}I and 63 MBq for ^{124}I. A blinded reader categorized every focus highlighted by ^{131}I or ^{124}I radioiodine uptake on the images; a focus was categorized as positive if considered to be residual thyroid tissue, most probably metastasis, or definitely metastasis.

In eight patients (32%), a greater number of positive foci were observed on the ^{124}I than the ^{131}I images, and three of these had metastases confirmed in at least one of the additional positive foci detected on the ^{124}I images. In 16 patients, ^{124}I images and ^{131}I images contained the same number of foci, although only two of these patients had positive foci. In one patient, an additional positive focus was observed on the ^{131}I image that was not seen on the ^{124}I image, but this additional focus is not yet confirmed as a metastasis. In total, 97 positive foci were identified on either ^{124}I or ^{131}I images, but 49 additional positive foci were observed on the ^{124}I images, whereas only one additional positive focus was observed on ^{131}I images.

Van Nostrand *et al.* suggest that ^{124}I PET produced superior results because the PET scanner provides images with reduced background noise and enhanced spatial and contrast resolution compared with ^{131}I planar imaging. They thus argue that the availability of ^{124}I should be expanded.

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Original article Van Nostrand, D. *et al.* ^{124}I positron emission tomography versus ^{131}I planar imaging in the identification of residual thyroid tissue and/or metastasis in patients who have well-differentiated thyroid cancer. *Thyroid* **20**, 879–883 (2010)