MIBI and Thyroid Tumors

TO THE EDITOR: We read with interest the article by Hiroshi Nakahara et al. (*1*) who compared ^{99m}Tc-sestamibi scintigraphy with ^{201}Tl in the evaluation of thyroid tumors. They found that malignant tumors tended to retain more tracer than did benign tumors. There were 25 patients (11 papillary, 2 follicular carcinoma, 7 follicular adenoma and 5 adenomatous goiter). Of the patients with carcinoma, nine showed iso and four superior sestamibi uptake to the surrounding thyroid tissue. On the delayed scan there were seven patients with superior sestamibi uptake.

In our study on double-phase sestamibi scintigraphy of 62 patients with hypofunctinal thyroid nodules (*2*), we found that in patients with thyroid carcinoma (12 cases: 9 papillar, 2 follicular and 1 nondifferentiated carcinomas) only five cases showed superior sestamibi uptake on the delayed scan. They also demonstrated superior sestamibi uptake on the early performed scan, but there was no patient that was sestamibi-positive after 2 hr (delayed scan) when there was only iso sestamibi uptake to the surrounding thyroid tissue on the early performed scan. In addition, there was one patient with nondifferentiated carcinoma that showed less sestamibi uptake to the surrounding thyroid tissue. Therefore, we want to point out that sestamibi is not specific for thyroid malignancy, and it should be clear that most of the thyroid carcinomas are sestamibi negative after 2 hr. In addition, nondifferentiated carcinomas are showing no sestamibi uptake. Concerning adenomas, it is important to differentiate thyroid adenomas histologically because they show different sestamibi uptake behavior. In particular, microfollicular adenomas tend to retain sestamibi. In our study, follicular and oxyphilic adenomas were sestamibi-positive in only 50% of cases on the delayed scan, but all microfollicular adenomas retained sestamibi up to the 2-hr mark. We think an important aspect is also the tumor size in imaging. Thyroid nodules more than 1.5 cm in diameter are likely to be found on imaging (*3*). False-positive findings in thyroid scintigraphy must be reckoned with due to parathyroid adenomas (*4*).

E. Kresnik
H.J. Gallowitsch
P. Mikosch
P. Lind
Department of Nuclear Medicine and Endocrinology
Klagenfurt, Austria

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Scintigraphic Detection of Pyelonephritis

TO THE EDITOR: In the October 1996 issue of the *JNM*, Majd et al. (*1*) presented their useful animal model work addressing scintigraphic detection of experimentally induced pyelonephritis in piglets. The authors reported their method of SPECT reconstruction, describing a conventional method as well as one that provides reoriented SPECT images, using rotation to generate orthogonal planes with respect to the axis of each kidney. However, the authors do not specify whether both the conventional and re-oriented SPECT data were used in their reported results. If both datasets were included, it would be useful to learn whether there were any differences in results between the two sets of SPECT data.

Our group (*2*) as well as others (*3–5*) have applied reorientation to SPECT-DMSA studies. In a blinded retrospective study comparing SPECT and re-oriented SPECT in 26 children, we reported differences in both the detection of abnormalities as well as confidence in the interpretation, with re-oriented SPECT resulting in reduction in the number of equivocal readings. However, our findings were limited by the lack of an appropriate "gold standard." Therefore, by amplifying their findings relating to SPECT and re-oriented SPECT specifically, Majd et al. (*1*) would shed light on the potential role of re-oriented SPECT.

In addition, details regarding acquisition parameters for pinhole images were omitted.

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Patrice K. Rehm
Georgetown University Hospital
Washington, D.C.