

Post-Surgical Follow-up of Differentiated Thyroid Carcinoma

TO THE EDITOR: We were very interested to read the article (1) by Ronga and colleagues which depicted nicely the importance of combination of serum Tg levels and whole-body scans, but no mention was made about ¹⁸F-fluorodeoxyglucose (FDG) scan of metastases of thyroid cancer, which is done in presence of thyroxine therapy (2,3) and therefore avoids the risks of hypothyroidism.

REFERENCES

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2. Joensuu H, Ahonen A. Imaging of metastases of thyroid carcinoma with fluorine-18-fluorodeoxyglucose. *J Nucl Med* 1987;28:910-914.
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REPLY The observation made by Dr. Taher is very important and indeed ¹⁸F-FDG scintigraphy could be widely and successfully used for the follow-up of metastasis from differentiated thyroid carcinoma (DTC) in the near future. Two aspects are limiting its use at the moment: (a) more clinical studies are needed to confirm its clinical usefulness towards conventional thyroglobulin (Tg) measurement and ¹³¹I whole-body scan (WBS); (b) its use is limited only to those centers who have access to a cyclotron. In many nuclear medicine centers, as in Rome, a cyclotron is not available and follow-up of patients with DTC depends on conventional Tg measurement and ¹³¹I WBS. Thus, our study has high clinical relevance. Moreover, the aim of our study was not to compare the ¹³¹I WBS with other imaging techniques, but to compare Tg and WBS sensitivity and specificity.

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Ablation Dose of Iodine-131 for Postoperative Remnant

TO THE EDITOR: I have read the article by Johansen et al. (1) with much interest. They prospectively compared the efficacy of 1073 MBq and 3700 MBq doses given every 3-4 mo for ablation of postoperative residual thyroid tissue. They concluded that there was no difference in the number of doses needed to achieve "scintigraphic ablation" between the two levels of therapy doses.

I would like to have the authors clarify their data and ask their thoughts on a few points. The total number of subjects was said to be 63, but the numbers on Table 2 do not add up to it. This table is very confusing. Looking at Group I first, there were 36 patients, but only 26 received a "first" dose (21 of this 26 were ablated). What happened to the remaining 10 patients? Did they receive second and third doses without a first? The arithmetics were confusing for Group II as well. It was not clear whether the patients who had "scintigraphic ablation" at 3 mo had further follow-up studies.

It was a prospective study, and the authors must have known the importance of serum TSH levels in the uptake of radioiodine. There was, however, no mention about the actual serum TSH levels in their subjects. Many patients (39% and 46%) received TSH injections without discontinuing thyroxine treatment. This approach is shown to be less effective in preparing for radioablation (2).

The authors waited only 3-4 mo to determine whether the ¹³¹I treatment was effective, and gave second, third, fourth and fifth therapy doses, a rather aggressive approach. Three months is certainly too short a period to determine the effect of a therapy dose. Waiting 6 mo to a year conventionally before giving subsequent doses might have changed the results. It has been shown that the functional capacities of recently irradiated thyroids by as little as 185 MBq are far less than their pretreatment levels (3). It is not too difficult to assume that the effect would be greater when a much larger amount (1073-3700 MBq) of ¹³¹I is given. If this simple radiobiologic fact is accepted, then, one can easily see that a lesser and lesser amount of the subsequent ¹³¹I doses will end up in thyroid, and that most of the therapy doses "go down the drain." Some are expressing concerns even over the scanning doses of I-131, fearing that it may stun the cells and possibly prevent maximum uptake of a subsequent therapy dose (3-5). Just how long a thyroid would remain stunned after varying amount of sublethal doses of ¹³¹I is not well known at present time.

It is a well-accepted radiobiologic assumption that a successful ¹³¹I thyroablation will depend on:

1. The total absorbed radiation dose which, in turn, depends on the amount administered, functional status of the thyroid, size of the lesion, and the biologic half-life of ¹³¹I in the thyroid tissue.
2. The radiosensitivity of the individual thyroids and thyroid cancers, which is, unfortunately, not measurable. In their study as presented, there were no attempts made for dosimetric calculations, such as measuring thyroid uptake and estimating the size of the "lesions." Also, without follow-up information given, their data do not have much meaning, and I believe their conclusion becomes a misleading one.

REFERENCES

1. Johansen K, Woodhouse N, Odugbesan O. Comparison of 1073 MBq and 3700 MBq iodine-131 in postoperative ablation of residual thyroid tissue in patients with differentiated thyroid cancer. *J Nucl Med* 1991;32:252-254.