Lesion Detection in Neuroblastoma with Iodine-131-MIBG

TO THE EDITOR: Like Dr. Shulkin and his group, we too have found better lesion detection in neuroblastoma patients with ^{131}I-MIBG compared to ^{99m}Tc-MDP bone scans (*1–3*). Although the comparative sensitivity of these two techniques has been debated in the literature, Shulkin's estimates of both total, osseus and soft-tissue lesions resulting from a comparison of the two techniques were the same as ours (*2,3*). Our series utilized both ^{131}I and ^{123}I. Iodine-123-MIBG was a little better than ^{131}I-MIBG, but much better than ^{99m}Tc-MDP (*2,3*).

The prognosis and treatment strategy of neuroblastoma is strongly dependent on its stage, tumor volume and metastatic lesion location. Therefore, the test that best provides this information optimizes these children's outcome. Since lesion detection even with MIBG is highly dependent on the dose of MIBG administered, MDP bone scans substantially underestimate tumor burden in neuroblastoma patients (*4*). MIBG is tumor specific, thus false-positives are significantly reduced as well. Clearly, from our studies and those of Dr. Shulkin, MIBG is the best agent.

We also found that MIBG scans are easier to interpret than MDP scans for the relatively inexperienced which should extend the improved diagnostic quality of MIBG compared to MDP to community hospitals (*3*). Listening to all this, we wonder why Shulkin continues to teach, "nonetheless, bone scintigraphy remains valuable in the routine evaluation of neuroblastoma . . . "(*1*).

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REPLY: The comments of Drs. Hattner and Parisi are well (but lightly) taken. The following is meant neither to endorse nor justify the routine use of bone scanning for neuroblastoma, but to restate the findings. In fact, any response to the inquiry runs the risk of overstating our enthusiasm for bone scanning in neuroblastoma. Those reservations considered, both of our studies show that MIBG scintigraphy is superior to bone scanning for the detection of skeletal foci from neuroblastoma. We also agree that MIBG better depicts the overall tumor burden. We demonstrated that in each of 77 patients, the two techniques were concordant for the presence or absence of skeletal disease. Although many more lesions were found using MIBG, in no case was staging altered (two patients had abnormal MDP scans in sites of prior surgery or bone marrow biopsy). For staging purposes, a single bone metastasis assigns the patient to the same Stage 4 as multiple lesions and within Stage 4 (with the exception of 4s), there are no subclassifications. So the finding of more bone metastases than a single one neither influences staging nor prognosis.

In addition, approximately 10% of neuroblastomas fail to accumulate MIBG and in these cases bone scanning remains the "gold standard" for evaluating bone involvement. Thus, we agree that MIBG scintigraphy is superior to skeletal scintigraphy for lesion detection; skeletal scintigraphy is somewhat of a "has been" when matched against the current champion, MIBG. Let us not forget, however, that even a "has been" wins when the champion defaults.

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Functional Imaging of Peripheral Vascular Disease

TO THE EDITOR: I read with great interest the paper by Dr. Segall et al. on functional imaging of peripheral vascular disease by whole-body thallium scintigraphy (*1*). If this method seems to be useful in the evaluation of known peripheral arterial disease, its diagnostic performances should be known for two reasons. First, the method has never been used as a diagnostic test in populations where the prevalence of peripheral vascular disease is less than 100%. Second, the diagnostic criteria seem to be rather imperfect because they have been estimated based on a very small group of patients (12 patients in Reference 1) with large confidence intervals. I think this is a real problem not only in clinical practice, but also in other fields of potential applications, such as epidemiological research or prognostic evaluation of multifocal atherosclerosis. Interextremity asymmetry seems to be the most reliable sign in favor of peripheral vascular disease rather than regional uptake in the legs during exercise. Peripheral vascular function is a multifactorial process which depends not only on gender and age, but also on physical training, type and level of exercise. This has been well demonstrated by venous occlusion plethysmography (*2*) in healthy subjects, with regard to age, gender and physical training. In a previous work (*3*), Segall et al. also found that regional thallium activity in the legs decreased in older patients (14 males, 12 females) without clinically patent peripheral vascular disease. Our own