201 uptake in this population appeared to denote a subgroup of lesions with distinctly greater mortality and morbidity. Thallium-201-avid lesions showed a 50% shorter period of recurrence-free survival from the time of diagnosis ($P < .01$). These findings exceeded the specificity of correlated structural imaging, mainly MR imaging. It would be of interest to know whether Dr. Mukherji and colleagues found any similar trends with respect to the different groups of cancer of the head and neck.

Both the University of North Carolina and our study thus suggest that the widely available and relatively inexpensive agent, thallium-201, provides important functional information regarding the biological behavior of brain tumors, which cannot generally be gleaned from the structural imaging findings alone. If confirmed in further clinical experience, this information has great potential benefit and may influence patient counseling regarding long-term outcome and be useful in the selection of the best treatment protocols.

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Reply

We thank Drs. O'Tuama and Poussaint for their interest in our work (1). Our study group consisted of patients with recurrent tumors and not primary neoplasms. Thus, we did not have the ability to investigate the prognostic capability of thallium-201 before treatment. It would have been difficult to draw any such conclusions from our patient population, because we evaluated previously treated patients for recurrent disease and the effect of thallium uptake after various forms of treatment had not been sufficiently investigated.

Drs. O'Tuama and Poussaint raise a potentially important use of thallium with respect to predicting treatment response and potentially stratifying treatment regimens on the basis of objective quantitative criteria. I would call their attention to the work of Nagamachi et al (2, 3). This group performed a semiquantitative measurement of thallium-201 to predict the response of squamous cell carcinoma of the head and neck to radiation therapy. The measurements consisted of a thallium-201 retention index; the details of this technique are described in their articles. Nagamachi et al (3) found that the pretreatment retention index was predictive of response to radiation therapy. A high retention index was predictive of $\geq$50% reduction in size of the primary site (complete or partial response), whereas a low retention index was predictive of <50% response (3). We have recently evaluated the ability of combined pre- and post-thallium-201 to predict response in squamous cell carcinoma of the head and neck treated with nonsurgical organ preservation therapy (4). Our preliminary results showed that persistence of activity in the primary site at 6 weeks after completion of therapy was indicative of persistent tumor, whereas loss of uptake was indicative of local control (4). We did not, however, quantify the pretreatment thallium uptake of the tumors in this report (4). This is something we can certainly consider investigating in future studies to shed more light on the insightful inquiry presented by Drs. O'Tuama and Poussaint.

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Atraumatic Lumbar Puncture

Eskey and Ogilvey (1) conclude that the use of fluoroscopically guided lumbar punctures in patients with suspected subarachnoid hemorrhage should reduce the incidence of false-positive diagnoses of acute hemorrhage and therefore the number of unnecessary angiographic procedures. The authors may wish to consider another method of obtaining a lumbar puncture based on the experience of those of us who carried out pneumoencephalography before the days of CT. With the patient sitting erect and bending forward over a pillow on his or her lap, the interspinous distances are increased. An accurate midsagittal approach is easily ascertained and access to the subarachoid space is atraumatic and simple. I would submit that this method leads to fewer false-positive results than those of the usual bedside lateral decubitus approach and is less time-

consuming and costly than the biplane fluoroscopic approach, which the authors advocate.

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