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LETTER TO THE EDITOR

The role of ^{99m}Tc-tetrofosmin brain SPECT in differentiating treatment-induced necrosis from recurrent brain tumor

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To the Editor:

We read with great interest the recent article by Jain et al. [1] on the differentiation of treatment-induced radiation necrosis from recurrent or progressive brain tumor using several functional imaging modalities. The authors reviewed the current literature regarding diffusion- and perfusion-weighted magnetic resonance imaging (MRI), MR spectroscopy and positron emission tomography (PET). They discussed the contribution of the above imaging modalities in differentiating between recurrent brain tumor and radiation necrosis as well as their limitations.

Apart from PET, single photon emission computed tomography (SPECT) is a molecular imaging modality that is more widely available and at lower cost. We have acquired significant experience with the brain tumor imaging properties of technetium-99 m-tetrofosmin (^{99m}Tc-TF), a SPECT tracer routinely used for myocardial perfusion imaging. In contrast to ^{99m}Tc-Sestamibi, an extensively studied SPECT tracer, ^{99m}Tc-TF is not influenced by the multi-drug resistance (MDR) glioma phenotype. Thus, ^{99m}Tc-TF may be superior for brain tumor imaging [2]. We have previously demonstrated that ^{99m}Tc- TF may hold promise for the differentiation of radiation necrosis from glioma recurrence and of neoplastic from non-neoplastic intracerebral hemorrhage [3, 4]. Given these recent findings in small series of patients, we would suggest that ^{99m}Tc-TF brain SPECT may offer a valuable alternative to PET imaging in this patient population, and we would argue that prospective clinical studies that incorporate SPECT imaging into the algorithms suggested by Jain et al. would be warranted.

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