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A Decision Tree Emerges from a Fertile Field

This issue of *JNM*, for the second time this year, provides readers with a cluster of manuscripts that deal with the broad subject of nuclear oncology. This is a direct result of the large number of manuscripts dealing with this subject which have been received, reviewed, revised and accepted during a relatively brief interval.

As with the contents of the June issue earlier this year, a diverse scope of nuclear medicine techniques are reported. In fact, this issue has numerous articles that provide comparison of two different radiopharmaceuticals for the detection or characterization of various tumors, or the management of patients with these tumors. PET imaging with FDG is compared to other PET tracers (amino acids), and with single-photon emitting tracers such as ^{99m}Tc-sestamibi, ^{131}I, labeled monoclonal antibodies or specific peptide ligands. Other reports compare single-photon tracers to one another and still others do not involve comparisons but nevertheless report significant observations relevant to improved understanding of the utility and basis of nuclear medicine techniques in human, animal or in vitro studies, improved technology, novel case reports, new dosimetric observations, and the therapeutic use of radionuclides.

Despite the diversity of techniques reported, and the likely continued role for established and new single-photon imaging techniques, it is clear that PET imaging in the detection and monitoring of patients with tumor has become increasingly important in the practice of oncology. How ironic that such an exquisite technique becomes available at a time that modern society appears to be less willing to support the costs of these advances. It is necessary and appropriate, therefore, that we focus our attention not only on the feasibility of performing a particular technique but on what the capacity to perform that technique offers the patient in terms of outcome and cost. It is necessary also to extrapolate these observations to the larger population at risk. Can the benefit to an individual or small group of patients be extrapolated to the larger population with the same diagnosis and stage of involvement? While physicians have been interested in these issues for some time, we have often retreated when confronting the management of a particular patient to what we think is best—and we have been allowed to do that. Increasingly, it appears that we will no longer have that degree of freedom. We therefore need to familiarize ourselves with these types of analyses and ultimately the techniques to perform these analyses.

The cover signature image for this issue is not a series of multicolor scans, a fusion image or a volume-rendered image as we have done so often in the past. Rather it is a decision tree which evaluates the cost-effectiveness of FDG-PET imaging in the management of non-small-cell lung carcinoma (NSCLC). We encourage readers to study the report by Gambhir et al. (see pages 1428–1436) from which the figure was obtained by paraphrasing the conclusion of the report's abstract. "These results show ... the potential cost-effectiveness ... (and) form the basis for detailed study of the results obtained from multicenter trials on the accuracy of FDG-PET in NSCLC management .... The techniques ... have broad applicability to the entire field of nuclear medicine."

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