

## EDITORIAL

# Nuclear oncology in Cancer Imaging 2011

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Nuclear oncology featured strongly in the 2011 issue of *Cancer Imaging* with 5 reviews, 2 original articles and 3 case reports. Many articles described diagnostic applications of novel or emerging tracers.

Stomatostatin receptor scintigraphy provided the focus of 2 original articles and a case report. Jindal et al.<sup>[11]</sup> (New Delhi, India) evaluated the role of [<sup>18</sup>F]FDG-PET/CT and [<sup>68</sup>Ga]DOTATOC-PET/CT in 20 patients with pulmonary carcinoids and concluded that the different uptake patterns of the 2 tracers and the ratio of measured uptake may be helpful in differentiating between typical and atypical carcinoids. A case report of concomitant lung and gastroenteropancreatic neuroendocrine tumours by Kaemmerer et al.<sup>[12]</sup> (Bad Berka, Germany) highlighted the utility of gallium-68 somatostatin receptor PET/CT based detection and follow-up of neuroendocrine tumours. A study by Beauregard et al.<sup>[13]</sup> (Quebec City, Canada) described the development of a quantitative <sup>177</sup>Lu SPECT imaging method using a commercially available SPECT/CT system. The authors highlighted the potential for the technique to yield more accurate dosimetry estimates and facilitate therapeutic response assessment for therapeutic agents such as [<sup>177</sup>Lu]octreotate.

A case report by Holter et al.<sup>[4]</sup> (Oklahoma City, USA) illustrates the utility of [<sup>18</sup>F]fluorothymidine-PET imaging in the diagnosis of leptomeningeal involvement with diffuse large B-cell lymphoma. Tracers such as [<sup>18</sup>F]fluorothymidine that depict proliferation, as well as hypoxia markers such as <sup>18</sup>F-labelled fluorinated imidazoles, are also highlighted by ICIS fellow Wim Oyen (Nijmegen, The Netherlands) in his review of the prospects for molecular imaging in the Special Issue in which he explores the role of PET beyond FDG for patient selection, treatment modification and adaptation and early response monitoring following radiotherapy<sup>[5]</sup>.

The use of the more widely used PET tracer [<sup>18</sup>F]fluorodeoxyglucose is considered in 3 articles related to

thoracic malignancies. Kaira et al.<sup>[6]</sup> (Shizuoka, Japan) systematically reviewed the role of [<sup>18</sup>F]FDG-PET in thymic epithelial tumours and concluded that [<sup>18</sup>F]FDG-PET may be useful in differentiating thymomas and thymic carcinomas. A case report by Akosman et al.<sup>[7]</sup> (Istanbul, Turkey) entitled Unicentric mixed variant Castleman disease associated with Hashimoto disease: the role of PET/CT in staging and evaluating response to the treatment proposes a potential role for [<sup>18</sup>F]FDG-PET/CT not only in staging Castleman disease but also in the assessment of treatment response. In the Special Issue, ICIS fellow Sheila Rankin (London, UK) reviews the value of [<sup>18</sup>F]FDG-PET/CT in oesophageal cancer highlighting the technique's accepted role as an adjunct to conventional imaging for the staging of oesophageal cancer, for response assessment and identification of recurrent disease<sup>[8]</sup>.

An issue that potentially affects imaging with any PET tracer is the clinical significance and management of lesion motion due to respiration during PET/CT scanning, which was reviewed by Callahan et al.<sup>[9]</sup> (Melbourne, Australia). They illustrate how accurate characterization of PET-avid disease in areas of high respiratory motion can be challenging and describe different approaches that have been used to address the issue of respiratory motion in PET/CT.

The continuing development of conventional gamma imaging in oncology is shown by Dizdarevic and Peters<sup>[10]</sup> (Brighton, UK) who review the imaging of multidrug resistance in cancer with an emphasis on [<sup>99m</sup>Tc]MIBI scintigraphy, illustrating the opportunities for cost-effectively guiding individualized treatment in an era of personalized medicine.

These *Cancer Imaging* articles testify to the ongoing importance of nuclear medicine in the imaging and treatment of cancer.

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