

Visualisation of a somatostatin receptor-expressing tumour with ^{67}Ga -DOTATOC SPECT

K. Zhernosekov¹, P. Aschoff³, D. Filosofov², M. Jahn¹, M. Jennewein¹, H.-J. Adrian³, H. Bihl³, F. Rösch¹

¹ Institut für Kernchemie, Universität Mainz, Mainz, Germany

² Joint Institute of Nuclear Research, LNP, Dubna, Russia

³ Klinik für Nuklearmedizin, Klinikum Stuttgart—Katharinenhospital, Stuttgart, Germany

Published online: 24 August 2005

© Springer-Verlag 2005

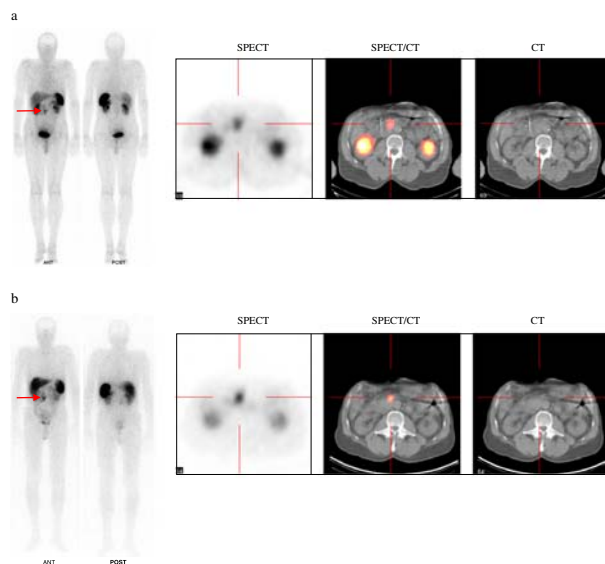
Eur J Nucl Med Mol Imaging (2005) 32:1129

DOI 10.1007/s00259-005-1864-2

In comparison to ^{111}In -DTPAOC (Octreoscan), gallium-labelled DOTATOC shows better binding affinity to human somatostatin receptor subtype 2 and improved pharmacology in vivo [1, 2]. Especially if ^{68}Ga -DOTATOC and PET/CT are applied, somatostatin receptor-expressing tumour tissue is excellently visualised. However, SPECT is still a more widely available imaging method. Here we present the first visualisation of a human somatostatin receptor-expressing tumour with ^{67}Ga -DOTATOC SPECT/CT.

A 65-year-old man with known mesenteric lymph node metastases of a surgically removed carcinoid in the small bowel received 180 MBq of ^{111}In -DTPAOC and, 1 week later, 230 MBq of ^{67}Ga -DOTATOC (50 MBq/ μg specific activity). All metastases detected with ^{111}In -DTPAOC (a) could be visualised with ^{67}Ga -DOTATOC as well. Scans of ^{67}Ga -DOTATOC (SPECT/CT) were performed less than 4 h post injection to generate excellent images of the mesenteric manifestations (b), with a higher tumour to background ratio compared to that on ^{111}In -DTPAOC images. The presence of only faint renal ^{67}Ga -DOTATOC uptake constitutes a further favourable characteristic of this radio-labelled peptide.

K. Zhernosekov (✉)
Institut für Kernchemie,
Universität Mainz,
Mainz, Germany
e-mail: zhernosk@uni-mainz.de



References

- Hofmann M, Maecke HR, Börner AR, Weckesser E, Schöffski P, Oei ML et al. Biokinetics and imaging with the somatostatin receptor PET radioligand ^{68}Ga -DOTATOC: preliminary data. *Eur J Nucl Med* 2001;28:1751–7
- Kowalski J, Henze M, Schuhmacher J, Macke HR, Hofmann M, Haberkorn U. Evaluation of positron emission tomography imaging using ^{68}Ga -DOTA-D Phe(1)-Tyr(3)-octreotide in comparison to ^{111}In -DTPAOC SPECT. First results in patients with neuroendocrine tumors. *Mol Imaging Biol* 2003;5:42–8