Imaging of prostate cancer metastases with ^{18}F-fluoroacetate using PET/CT

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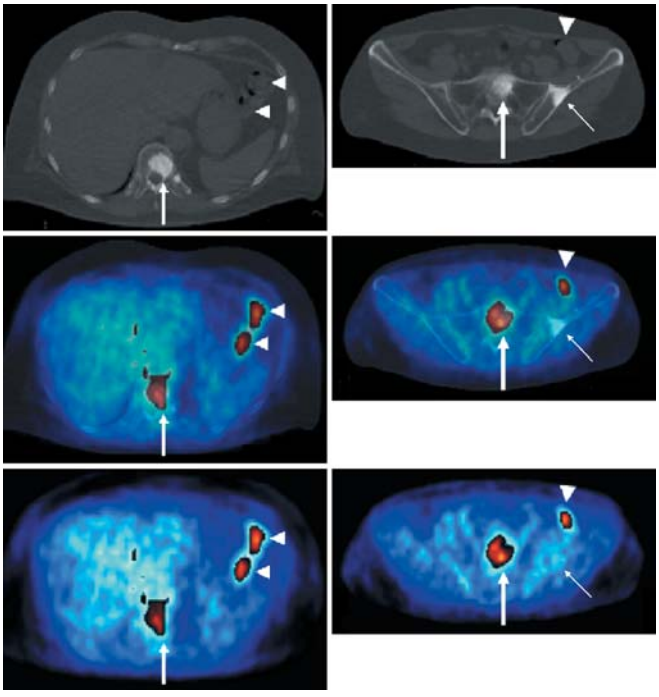
Fluorine-18 fluoroacetate [1] appears to be an interesting alternative to ^{11}C-acetate [2, 3] for imaging prostate cancer with PET. We acquired the first ^{18}F-fluoroacetate PET images in a patient with prostate cancer, rising PSA (101 ng/ml) and progressive bone metastases. Scanning started 70 min after i.v. injection of 280 MBq ^{18}F-fluoroacetate using a combined PET/CT system (Siemens Biograph).

The images demonstrate moderate to intense uptake in several (*thick arrows*) but not all (*thin arrows*) metastatic bone lesions, with SUV_{mean} of 2.82–4.10 and SUV_{max} of 3.36–5.11. This compared favourably to accumulation in the liver, with SUV_{mean} of 2.35–2.71 and SUV_{max} of 3.0–3.58. The mode of excretion was predominantly via the bowel (*arrowheads*), with low activity in the urine.

Compared with ^{11}C-acetate PET, ^{18}F-fluoroacetate offers the possibility of delayed imaging with the potential to further increase the tumour-to-background ratios.

Upper row: CT image slices; *middle row*: combined ^{18}F-fluoroacetate PET/CT; *lower row*: ^{18}F-fluoroacetate PET



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