The potential role of positron emission tomography in the detection of occult cancer in 25 patients with venous thromboembolism

Screening for occult cancer in patients with idiopathic venous thromboembolism (VTE) remains a major unresolved issue with respect to extensiveness and costs of investigations [1, 2]. The highly sensitive whole body, $^{18}$F-fluoro-2-deoxy-D-glucose positron emission tomography (FDG–PET) has not been investigated in this setting. The diagnostic accuracy of FDG–PET is supposed to be much higher than conventional imaging techniques for staging of cancer and identifying unknown primary tumours [3]. In patients with paraneoplastic syndromes, an underlying malignancy was detected in 23% of the cases by using FDG–PET [4]. In the past, only one case report was published regarding a patient with recurrent deep venous thrombosis where FDG–PET led to the diagnosis of the underlying cancer [5]. The aim of this pilot study was to investigate the value of whole-body FDG–PET for detecting occult cancer in idiopathic VTE patients.

Between April 2003 and January 2006, 25 idiopathic VTE patients (13 men and 12 women; mean age 59.1 years, range 34–88 years) with normal chest X-ray and normal ultrasound of the abdomen were eligible for FDG–PET. Exclusion criteria were recurrent VTE, known active malignancy and cancer diagnosed at the time of presentation. Hypermetabolic lesions were found in five of the 25 included patients (20%) with an average maximal standard uptake value (SUVmax) of 4.02 (range 1.0–5.0). Table 1 shows the FDG–PET results and final diagnosis. In four patients with increased FDG uptake, the lesions were not considered as suspected for malignancy, and additional investigations did not reveal any sign of cancer. In one patient (4%; 1 of 25), the hypermetabolic lesion, although related to the bowel, showed high SUVmax (5.0) compared with the surrounding area that it was
interpreted as suspected for cancer. A subsequent colonoscopy showed a villous adenoma of the colon with low-grade dysplasia. At the time of the final analysis, the mean follow-up for the entire group was 27.3 months (range 13–48 months). None of the patients had developed cancer during follow-up.

In conclusion, the additional role of FDG–PET screening for occult cancer in idiopathic VTE patients appeared to be limited. Larger studies in idiopathic VTE patients should only be carried out in those patients with a high a priori risk of developing cancer with emphasis on cost-effectiveness, improvement in subsequent treatment of tumours and acceptance of such procedures by the patients.

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references


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<table>
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<th>No.</th>
<th>Sex</th>
<th>Age (years)</th>
<th>PET lesions</th>
<th>Suspected for malignancy</th>
<th>SUVmax</th>
<th>Additional investigations</th>
<th>Final diagnosis</th>
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<td>5.0</td>
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<tr>
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<td>Y</td>
<td>5.0</td>
<td>Colonoscopy</td>
<td>Villous adenoma with low-grade dysplasia</td>
</tr>
</tbody>
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F, female; M, male; SUVmax, maximal standard uptake value; FDG–PET, 18F-fluoro-2-deoxy-D-glucose positron emission tomography; CT, computed tomography.

Table 1. FDG–PET results and final diagnosis

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