Correspondence

(The Editors do not hold themselves responsible for opinions expressed by correspondents)

The diagnostic value of FDG–PET cannot be judged by iliac bone marrow biopsy

The Editor,

We read with great interest a recent publication by Muzahir et al [1] on the value of 18-fluorodeoxyglucose–positron emission tomography (FDG–PET)/CT in the detection of bone marrow involvement (BMI) in Hodgkin's lymphoma (HL). However, we cannot agree with the authors on the definition of BMI. We believe that the data were not reliable because the authors defined a positive bone marrow lesion based solely on a positive finding on iliac bone marrow biopsy (BMB), and because the authors regarded diffuse FDG uptake in bone marrow as a positive PET finding.

BMB is traditionally performed in the iliac crests. When the technique was first advocated, it was not known which part of the bone marrow would have tumour infiltration; the iliac crest was chosen because of its convenient location and richness of bone marrow. BMB performed in this way has a high false-negative rate and cannot accurately reflect the status of lymphoma in the bone marrow. Many pathological studies have proven that blind iliac BMB has a low sensitivity for detecting BMI lesions in various malignancies [2]. The fact that a unilateral iliac BMB missed 26–50% of BMI cases in lymphoma patients (based on the findings of bilateral iliac BMB) [3–6] provided strong evidence that a significant number of BMI lesions would be missed even if a bilateral iliac BMB was performed. In addition, multiple studies revealed that FDG–PET or PET/CT detects more BMI than iliac BMB [7–12]. BMI typically manifests as multifocal FDG abnormalities on FDG–PET imaging [9, 10, 12]. Multifocal lesions on an FDG–PET scan are often indicated as true-positive BMI if other conditions (fractures, osteomyelitis etc.) can be ruled out, even if BMB (performed blindly in the iliac crests) is negative. This often indicates a false-negative finding for BMB, owing to the fact that if a repeat BMB was performed at the bone region where abnormal FDG uptake is noticed, BMB would very likely be positive for BMI [10, 13, 14]. Using the BMB finding to judge the FDG–PET finding would render BMI lesions detected with FDG–PET as false-positive findings, leading to a low specificity for FDG–PET and, more importantly, understaging for patients.

In addition, taking diffuse FDG uptake in the bone marrow as a positive PET finding in this paper also contributed to the authors' conclusion that FDG–PET performed poorly. It is well recognised that diffuse FDG uptake in the bone or bone marrow is more likely to be due to inflammatory changes [15] or reactive myeloid

hyperplasia [13] than to lymphoma infiltration. Current guidelines have made it clear that diffuse uptake in the bone or bone marrow, even if more intense than in the liver, should not be interpreted as BMI [16, 17]. Thus, taking diffuse FDG uptake as a positive finding on PET will lead to a lot of false-positive findings on PET and will decrease the positive predictive value (PPV) of FDG–PET.

As a result, we cannot agree with the authors' conclusion that FDG–PET/CT had a PPV of 29.72% in detecting BMI, which is totally different from our clinical findings and different from other research reports [7–12, 14]. Given that the incidence of BMI in Hodgkin's lymphoma is approximately 20–30%, the PPV of 29.72 for FDG–PET/CT, as this paper reported, essentially means that FDG–PET/CT has no diagnostic value for detecting lymphomatous BMI. This is not consistent with our clinical observation and other research findings, which reported a >90% PPV in a similar clinical setting [7–12].

Yours etc.,

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