LETTER TO THE EDITOR

The prognostic value of 18-FDG positron emission tomography in T cell non-Hodgkin lymphoma

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18F-fluorodeoxyglucose positron emission tomography (FDG-PET) scans are typically positive in patients with T cell non-Hodgkin lymphoma (T-NHL) and can assist in the diagnosis and staging of this uncommon malignancy. Previous studies have suggested that FDG-PET is a useful tool in initial staging of T-NHL; however, there is relatively little evidence for the role of the post-treatment FDG-PET in this patient population. Some published studies support the role of a negative post-treatment PET in predicting progression-free survival (PFS) and overall survival (OS),^{1,2} while other studies have found that a negative interim or post-treatment PET does not predict outcome.^{3,4} Recently published guidelines remain ambivalent about the utility of the PET scan in T-NHL, stating 'there is no clearly defined role for FDG-PET in this disease group'.⁵ We aimed to evaluate the predictive value of interim and post-treatment PET scans in T-NHL to determine their effect on PFS and OS.

Patients who underwent a PET scan for a diagnosis of T-NHL from 2002 to May 2016 were retrospectively identified by a search of the medical records and NSW Cancer Registry in a single tertiary hospital. Demographics, treatments and survival outcomes were recorded in a de-identified database. Final PET results were correlated with PFS and OS outcomes. Ethics approval was obtained for the study. Kaplan–Meier survival analysis and the log–rank test were used to assess the difference in survival with a *P*-value of < 0.05 to indicate statistical significance.

A total of 47 patients were identified as eligible for inclusion, 29 were male (62%), with an average age of 52 years at diagnosis. Out of the total patients, 45 (96%) had an initial PET, 26 (62%) had an interim PET, and 39 (83%) had a post-treatment PET. The majority of patients had advanced disease at diagnosis, with an Ann Arbor stage of III or IV (70%) and an international prognostic index score of 2 or above (60%). The frequency of specific T cell histologies were anaplastic large cell, ALK-1 positive (15%), ALK-1 negative (24%), and unspecified (2%); peripheral T cell lymphoma not otherwise specified (28%); angioimmunoblastic T cell lymphoma (11%); subcutaneous panniculitis-like T cell lymphoma (4%); mycosis fungoides (4%); and others (6%). The majority of patients were treated with CHOP (cyclophosphamide, doxorubicin, vincristine and prednisone, 66%), with other chemotherapy regimens including CHOP with etoposide, HyperCVAD (cyclophosphamide, doxorubicin, vincristine, dexamethasone, methotrexate and cytarabine), SMILE (dexamethasone, methotrexate, ifosfamide, L-asparaginase and etoposide), and cyclosporine with prednisone. Radiotherapy alone was given in 6% of cases. Patients were followed up for a mean of 33.8 months. During the follow-up period, 22 patients progressed (47%) and 20 died (43%).

Those with a positive post-treatment PET scan (*n* = 11) had a median OS of 27.9 months (Figure 1). OS was not reached for those with a negative post-treatment scan (*P* = 0.0017). The median PFS for those with a positive post-treatment PET scan was 5.2 months, with PFS not reached for those with a negative scan (*P* = 0.0012; Figure 2). The interim PET scan did not appear to be significant in predicting PFS or OS in our cohort.

Figure 1. Kaplan–Meier overall survival curves for those with a negative post-treatment PET, compared to those with a positive post-treatment PET.

Figure 2. Progression-free Kaplan–Meier survival curves for those with a negative post-treatment PET, compared to those with a positive post-treatment PET.

The post-treatment PET scan appears to be of value in predicting both PFS and OS in T-NHL. Our study is limited by the low patient numbers due to disease rarity and the inherently heterogeneous behaviour of the different subtypes of T-NHL. The retrospective, single-centre nature of the study is also an inherent limitation. Nevertheless, this study adds to the growing body of evidence supporting the importance of the post-treatment PET scan in predicting outcomes in T-NHL.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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