



The PET Experts

[¹⁸F]Fluorodeoxyglucose Positron Emission Tomography Predicts Survival After Chemoimmunotherapy for Primary Mediastinal Large B-Cell Lymphoma: Results of the International Extranodal Lymphoma Study Group IELSG-26 Study

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Abstract

Purpose To assess the role of [¹⁸F]fluorodeoxyglucose ([¹⁸F]FDG) positron emission tomography/computed tomography (PET/CT) after rituximab and anthracycline-containing chemoimmunotherapy in patients with primary mediastinal large B-cell lymphoma (PMLBCL).

Patients and Methods Among 125 patients prospectively enrolled, 115 were eligible for central review of PET/CT scans at the completion of standard chemoimmunotherapy, by using a five-point scale. Consolidation radiotherapy (RT) was permitted and given to 102 patients.

Results Fifty-four patients (47%) achieved a complete metabolic response (CMR), defined as a completely negative scan or with residual [¹⁸F]FDG activity below the mediastinal blood pool (MBP) uptake. In the remaining 61 patients (53%), the residual uptake was higher than MBP uptake but below the liver uptake in 27 (23%), slightly higher than the liver uptake in 24 (21%), and markedly higher in 10 (9%). CMR after chemoimmunotherapy predicted higher 5-year progression-free survival (PFS; 98% v 82%; $P = .0044$) and overall survival (OS; 100% v 91%; $P = .0298$). Patients with residual uptake higher than MBP uptake but below liver uptake had equally good outcomes without any recurrence. Using the liver uptake as cutoff for PET positivity (boundary of score, 3 to 4) discriminated most effectively between high or low risk of failure, with 5-year PFS of 99% versus 68% ($P < .001$) and 5-year OS of 100% versus 83% ($P < .001$).

Conclusion More than 90% of patients are projected to be alive and progression-free at 5 years, despite a low CMR rate (47%) after chemoimmunotherapy. This study provides a basis for using PET/CT to define the role of RT in PMLBCL.