



Interim [¹⁸F]Fluorodeoxyglucose Positron Emission Tomography Scan in Diffuse Large B-Cell Lymphoma Treated With Anthracycline-Based Chemotherapy Plus Rituximab

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Abstract

Purpose

The prognostic value of [¹⁸F]fluorodeoxyglucose–positron emission tomography (PET), interpreted according to visual criteria, is a matter of debate for diffuse large B-cell lymphoma (DLBCL). Moreover, most published studies do not differentiate between patients treated with or without rituximab. We retrospectively investigated the prognostic value of PET performed in patients with DLBCL receiving chemotherapy plus rituximab. Images were interpreted both visually and by computing maximum standardized uptake value (SUV_{max}) between PET performed at baseline and after two cycles of chemotherapy.

Patients and Methods

One hundred twelve patients newly diagnosed with DLBCL were treated with an anthracycline-based regimen plus rituximab. A PET was performed after two cycles of treatment. PET positivity or negativity was related to progression-free survival (PFS) and overall survival (OS) using Kaplan-Meier analysis.

Results

Visual analysis showed that 70 patients (62.5%) presented with a negative PET scan after two cycles of treatment. The 3-year PFS and OS rates were 84% and 88%, respectively, in patients with PET-negative results versus 47% and 62%, respectively, in patients with PET-positive results ($P < .0001$ and $P < .003$, respectively). A second analysis was performed on 85 patients by using interim PET in a quantitative approach on the basis of a Δ SUV_{max} evaluation of more than 66%. The 3-year PFS was 77% for patients with PET-negative results and 37.5% for patients with PET-positive results ($P = .002$).

Conclusion

An early PET scan after two cycles of treatment can effectively predict the outcome in patients with DLBCL treated with rituximab and anthracycline-based chemotherapy by using either a visual or quantitative approach.