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Positron Emission Tomography–Computed Tomography (PET-CT) After Induction Therapy Is Highly Predictive of Patient Outcome in Follicular Lymphoma: Analysis of PET-CT in a Subset of PRIMA Trial Participants

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Abstract

Purpose The utility of [^{18}F]fluorodeoxyglucose (FDG) positron emission tomography–computed tomography (PET-CT) in assessing response at the end of induction therapy is well documented in Hodgkin's and diffuse large B-cell lymphomas, but its role in follicular lymphoma (FL) remains undetermined. We investigated the prognostic significance of PET-CT performed after first-line therapy in patients with FL treated in the prospective Primary Rituximab and Maintenance (PRIMA) study.

Patients and Methods Results of PET-CT scans performed after induction immunochemotherapy were recorded retrospectively. Patients went on to either observation or rituximab maintenance per protocol independent of the PET-CT result. Patient characteristics and outcomes were then evaluated.

Results Of 122 PET-CT scans performed at the end of the induction immunochemotherapy, 32 (26%) were reported as positive by the local investigator. Initial demographic or disease characteristics did not differ between PET-CT–positive (PET-positive) and PET-CT–negative (PET-negative) patients. PET status correlated with conventional response criteria (P < .001). Patients remaining PET positive had a significantly (P < .001) inferior progression-free survival at 42 months of 32.9% (95% CI, 17.2% to 49.5%) compared with 70.7% (95% CI, 59.3% to 79.4%) in those who became PET negative. PET status, but not conventional response (complete response or complete response unconfirmed *v* partial response) according to IWC 1999, was an independent predictive factor for lymphoma progression. The risk of death was also increased in PET-positive patients (hazard ratio 7.0; P = .0011).

Conclusion [^{18}F]FDG PET-CT status at the end of immunochemotherapy induction in patients with FL is strongly predictive of outcome and should be considered a meaningful clinical end point in future studies.

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