18F-FDG PET is an independent outcome predictor in primary central nervous system lymphoma

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Primary central nervous system (CNS) lymphoma is an aggressive non-Hodgkin lymphoma with poor prognosis. We evaluated pretreatment (18)F-FDG PET as a prognostic marker in primary CNS lymphoma.; Forty-two immunocompetent patients with newly diagnosed primary CNS lymphoma who underwent pretreatment (18)F-FDG PET were retrospectively analyzed. Baseline status and response to treatment were evaluated by MR imaging. Tumor maximum standardized uptake values were assessed by volume-of-interest analyses using an automatic isocontour definition. A 10-step semiquantitative visual rating system (metabolic imaging lymphoma aggressiveness scale, or MILAS) was used to assess primary CNS lymphoma metabolism as a marker of clinical aggressiveness. Logistic regression, log-rank testing, and multivariable Cox regression were used to investigate the association between (18)F-FDG uptake and tumor response and survival.; Mean maximum standardized uptake value correlated linearly with MILAS. The distribution of patients according to MILAS (0-9) was 0%, 28.6%, 23.8%, 21.4%, 11.9%, 4.8%, 7.1%, 0%, 0%, and 2.4%. There was no correlation between MILAS and response to treatment. Respective 2- and 5-y survival rates were 52% and 32% for progression-free survival (PFS) and 64% and 50% for overall survival (OS). A cutoff at MILAS 3 was a good separator for PFS (median: 54.7 mo [$\leq$3], 3.8 mo [>3], P = 0.0272) and OS (median: not reached [$\leq$3], 13.8 mo [>3], P = 0.131). In multivariable analyses, increasing MILAS was significantly associated with shorter PFS (hazard ratio, 1.49, P = 0.006) and OS (hazard ratio, 1.43, P = 0.018).; Increased pretreatment (18)F-FDG uptake may offer new opportunities for baseline risk evaluation in untreated primary CNS lymphoma.
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