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YKL-40 and MMP-9 as serum markers for patients with primary central nervous system lymphoma.

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Abstract

OBJECTIVE: To evaluate YKL-40 and MMP-9 proteins as tumor biomarkers in serum samples from patients with primary central nervous system lymphoma (PCNSL).

METHODS: In this prospective longitudinal study, serum samples from consecutive patients with histologically confirmed PCNSL were collected concurrently with magnetic resonance imaging (MRI) scans at multiple time points and were analyzed for levels of YKL-40 and MMP-9 by enzyme-linked immunosorbent assay. Marker levels were correlated to disease status and survival.

RESULTS: Forty-five patients with PCNSL were accrued. Median follow-up for survivors was 25 months, and 21 (47%) died during the study. A total of 230 serum samples were collected, and 93% had corresponding MRI scans. PCNSL patients without evidence of radiographic disease (29 patients, 131 samples) had significantly lower levels of serum YKL-40 and MMP-9 than patients with active tumor ($n = 34$ patients, 84 samples; $p = 0.03$ and 0.01 , respectively). There was a significant inverse correlation between survival and doubling of the YKL-40 level (hazard ratio, 1.7; $p = 0.01$).

INTERPRETATION: In patients with PCNSL, serum levels of YKL-40 and MMP-9 are associated with radiographic disease status. Longitudinal increase in serum levels of YKL-40, but not MMP-9, predicts survival in patients with PCNSL.

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