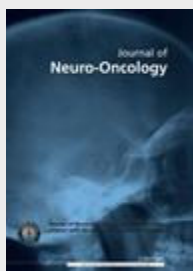


Journal Article



Proton magnetic resonance spectroscopy predicts proliferative activity in diffuse low-grade gliomas

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Abstract The aim of the study was to investigate the ability of ¹HMRS to reflect proliferative activity of diffuse low-grade gliomas (WHO grade II). Between November 2002 and March 2007, a prospective study was performed on consecutive patients with suspected supratentorial hemispheric diffuse low-grade tumors. All the patients underwent MR examination using uniform procedures, and then surgical resection or biopsy within 2 weeks of the MR examination. Proliferative activity of the tumors was assessed by Ki-67 immunohistochemistry (Mb-1) on paraffin embedded tumor sections. Spectroscopic data was compared with Ki-67 labeling index and other histologic data such as histological subtype, cellular atypia, cellular density using univariate and multivariate analysis. 82 of 97 consecutive patients had histologically confirmed WHO grade 2 gliomas. Ki-67 proliferation index (PI) was correlated with specific spectral patterns: (1) low PI (<4%) was associated with increased Cho/Cr and absence of both free lipids or lactates; (2) intermediate PI (4–8%) was associated with resonance of lactates; and (3) high PI (>8%) was characterized by a resonance of free lipids. On multivariate analysis, resonance of lactates and resonance of free lipids appeared as independent predictors of intermediate PI ($P < 0.001$) and high PI ($P < 0.001$), respectively; moreover, free lipids resonance was correlated with cellular atypia ($P < 0.05$). This study suggests that ¹HMRS is a reliable tool to evaluate the

proliferation activity of WHO grade 2 glioma and to identify potentially more aggressive clinical behavior.

Keywords Magnetic resonance spectroscopy - KI-67 labeling index - Low-grade glioma

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References secured to subscribers.

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