

Histopathological parameters with Ki-67 and bcl-2 in the prognosis of meningiomas according to WHO 2000 classification

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ABSTRACT

Aims and background. Meningiomas are classified following the WHO system of 2000 into three grades, benign (grade I), atypical (grade II), and anaplastic (grade III). We investigated the relation between tumor grade and Ki-67 and bcl-2.

Methods. In the present study, 246 cases of meningioma were reclassified according to the WHO 2000 system. The relationship between tumor grade and morphological parameters like pattern, mitotic index, cellularity, pleomorphism, nucleoli, small cell population with high nucleus/cytoplasmic ratio, necrosis and brain invasion was examined. Follow-up data were available for only 80 patients.

Results. A correlation was found between all morphologic parameters except for brain invasion. These parameters were related to a poor prognosis. There was no statistically significant difference in the prognosis between WHO grade I and grade II, whereas these two grades collectively exhibited significantly better survival than WHO grade III. Immunohistochemical staining for Ki-67 and bcl-2 was performed, and correlations between their expressions and other clinicopathological findings were investigated. Ki-67 and bcl-2 expression was correlated with tumor grade, and the higher the tumor grade, the higher the Ki-67 and bcl-2 expression. In conclusion, tumor grade appeared to be the most important parameter for a prognosis of meningiomas.

Conclusions. Ki-67 and bcl-2 expression might participate in carcinogenesis and when used with the grading system could provide additional benefit in assessing the biological behavior of the tumor.

Key words: bcl-2, immunohistochemistry, Ki-67, meningioma.

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