Classification of oligodendroglial tumors based on histopathology criteria is a significant predictor of survival--clinical, radiological and pathologic long-term follow-up analysis.


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BACKGROUND: The clinical course of oligodendroglial tumors is variable and there is a lack of consensus with regard to precisely diagnose which minimal criteria are required to make a diagnosis of a high-grade oligodendrial tumor. The aims of the present study are to assess pathologic factors with prognostic significance, in addiction to clinical and neuroradiologic variables, in an attempt to identify reproducible histological parameters that are useful for classification of oligodendroglial tumors. METHODS: 80 oligodendroglial tumors diagnosed between 1977 and 2004 were analyzed. To make a diagnosis of anaplastic tumor we used reproducible parameters: endothelial proliferation, high cellularity, increased mitotic activity and necrosis. Oligoastrocytomas (mixed gliomas) were diagnosed when the astrocytic component was clearly identified as part of the neoplastic cell population. Survival univariate analysis was made constructing survival curves using Kaplan-Meier method and comparing subgroups by log-rank probability test. A Cox regression model was made for multivariable analysis. RESULTS: The histologic diagnosis was low-grade oligodendroglioma in 35 patients (43.75%), anaplastic oligodendroglioma in 23 patients (28.75%), low-grade oligoastrocytoma in 11 patients (13.75%) and anaplastic oligoastrocytoma in 11 patients (13.75%). Median overall survival of the whole series was 80 months. The median overall survival of oligodendroglioma, anaplastic oligodendroglioma, oligoastrocytoma and anaplastic oligoastrocytoma was 148, 105, 47 and 7 months, respectively (p < 0.0001). Multivariate analysis revealed that age, Karnofsky performance status, histological grade and histological diagnosis (oligodendroglioma vs. oligoastrocytoma) were independently associated with survival. CONCLUSIONS: Clear cut histopathological criteria (endothelial proliferation, high cellularity, mitotic activity and necrosis) allow to establish different oligodendrogial tumor entities with distinct survival outcome.