Outcome and molecular characteristics of adolescent and young adult patients with newly diagnosed primary glioblastoma: a study of the Society of Austrian Neurooncology (SANO).


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Abstract

BACKGROUND: Young age is a favorable prognostic factor for patients with glioblastoma multiforme (GBM). We reviewed the outcomes and molecular tumor characteristics of adolescent and young adult patients with GBM treated in 2 Austrian centers.

PATIENTS AND METHODS: Data on patients with histologically proven primary GBM diagnosed from 18 through 40 years of age were retrospectively analyzed. All patients were treated with standard first-line therapy. The primary end points were overall survival (OS) and time to progression (TTP). IDH1-R132H mutation status was analyzed using immunohistochemistry, and MGMT promoter methylation was assessed using methylation-specific polymerase chain reaction.

RESULTS: We included 70 patients (36 men and 34 women) with a median age of 33 years. IDH1-R132H mutations were detected in 22 (39.3%) of 56 cases and MGMT promoter methylation in 33 (61.1%) of 54 cases with available tissue samples. In patients with wild-type IDH, median TTP was 8.2 months and median OS was 24 months, compared with 18 months and 44 months, respectively, observed in patients with mutated IDH. Neither IDH1 nor MGMT status showed a statistically significant association with TTP or OS. Of note, the social and economical situation of the young patients with GBM was alarming, because only 17% succeeded in staying employed after receiving the diagnosis.

CONCLUSIONS: We found a high frequency of IDH1 mutations and MGMT promoter methylation among young adult patients with primary GBM that may contribute to the generally favorable outcome associated with young age. The social and economic coverage of patients with glioma remains an unsolved socio-ethical problem.