ABSTRACT

J Neurosurg Sci. 2020 Dec 15. doi: 10.23736/S0390-5616.20.05047-X. Online ahead of print.

Brain location and tumor biological markers in high and low grade gliomas: our experience.

Raysi Dehcordi S(1), Galzio R(2), Marrone F(2), Di Vitantonio H(2), Marzi S(2), Fasano T(2), Taddei G(2), Millimaggi D(2), Di Cosimo T(2), Abbate F(2), Calvisi G(3), Masciocchi C(4), Ricci A(2).

Author information:
(1)Operative Unit of Neurosurgery, Surgical Department, San Salvatore Hospital, L'Aquila, Italy - soheila.raysi@alice.it.
(2)Operative Unit of Neurosurgery, Surgical Department, San Salvatore Hospital, L'Aquila, Italy.
(3)Operative Unit of, Neurosurgery, Maria Cecilia Hospital, Cotignola, Ravenna, Italy.
(4)Operative Unit of Pathology, San Salvatore, Hospital, L'Aquila, Italy.

BACKGROUND: Recent studies suggest gliomas location may be correlated with specific biological signatures. Our purpose was to focus on the possible correlation between MGMT metilation status and Ki67 positivity with patient age, glioma location and lateralization.
METHODS: We performed a retrospective evaluation to assess the correlation between MGMT metilation status and Ki67 index positivity with patient age, glioma location and lateralization.
RESULTS: The study included 174 supratentorial gliomas. Of these, 144 tumors were high grade gliomas (HGGs) and 30 tumors were low grade gliomas (LGGs). In HGG group we detected an association between tumor location and MGMT status. Those GBMs located in the frontal lobe were significantly associated with MGMT methylated status (MGMT+) and Ki67<30% than those GBMs located in other sites; while those GBMs located in the temporal lobe were associated with MGMT unmethylated (MGMT-) status. In anaplastic gliomas, we found an association between the involvement of the frontal lobe with MGMT+ status and Ki67<30%. In LGG group, our results showed that both frontal and temporal lobe were associated with a Ki67<30% and there was a predictive value for MGMT methylation status when patient age increased.
CONCLUSIONS: Our findings suggest there is a high variability in anatomical distribution of biological glioma markers and this high heterogeneity may have a clinical role. Moreover our study supports the idea that frontal lobe HGGs may be biologically favorable. Considering that as all glioma with lobar location are more amenable to radical surgical resection, it may be assumed that frontal tumor can have a better prognosis, and we have shown, to our knowledge for the first time, this is true both for HGG and for LGG.

DOI: 10.23736/S0390-5616.20.05047-X
PMID: 33320464