Outcome of patients affected by newly diagnosed glioblastoma undergoing surgery assisted by 5-aminolevulinic acid guided resection followed by BCNU wafers implantation: a 3-year follow-up.


Abstract
The purpose of the study was to evaluate the clinical outcome of the association of BCNU wafers implantation and 5-aminolevulinic acid (5-ALA) fluorescence in the treatment of patients with newly diagnosed glioblastoma (ndGBM). Clinical and surgical data from patients who underwent 5-ALA surgery followed by BCNU wafers implantation were retrospectively evaluated (20 patients, Group I) and compared with data of patients undergoing surgery with BCNU wafers alone (42 patients, Group II) and 5-ALA alone (59 patients, Group III). Patients undergoing 5-ALA assisted resection followed by BCNU wafers implantation (Group I) resulted long survivors (>3 years) in 15% of cases and showed a median PFS and MS of 11 and 22 months, respectively. Patients treated with BCNU wafers presented a significantly higher survival when tumor was removed with the assistance of 5-ALA (22 months with vs 18 months without 5-ALA, p < 0.0001); these data could be partially explained by the significantly higher CRET achieved in patients operated with 5-ALA assistance (80% with vs 47% without 5-ALA). Moreover, patients of Group I showed a significant increased survival compared with Group III (5-ALA without BCNU) (22 months with vs 21 months without BCNU wafers, p = 0.0025) even with a comparable CRET (80% vs 76%, respectively). The occurrence of adverse events related to wafers did not significantly increase with 5-ALA (20% with and 19% without 5-ALA) and did not impact in survival outcome. In conclusion, our experience shows that on selected ndGBM patients 5-ALA technology and BCNU wafers implantation show a synergic action on patients’ outcome without increasing adverse events occurrence.

KEYWORDS: 5-Aminolevulinic acid (5-ALA) fluorescence; BCNU wafers; Carmustine wafers; Glioblastoma; Long survivors; Survival

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