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O-117 - DEFEATING GLIOBLASTOMA: DETECTION OF POSSIBLE 5-ALA MEDIATED PHOTODYNAMIC THERAPY AFTER GROSS TOTAL RESECTION

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Resumen

Introduction: Poor outcomes in patients affected by glioblastoma (GBM) have driven the exploration of novel therapies such photodynamic therapy (PhT). PhT is a two-step treatment that involves the administration of a photosensitive agent (5-aminolevulinic acid; 5-ALA) followed by its activation at a specific light wavelength (600-800 nm), causing cell death. It is well known that most frequent recurrence pattern (75-90%) occurs in the form of a continuous growth from the border of the surgical cavity and white visible light (WVL; 380-700 nm) penetrance in cerebral tissue may reach up to 1 cm deep. In the basis of the previous statements, minor recurrence rate within the first cm from the surgical cavity border may be anticipated when 5-ALA have been administered in conjunction with WVL exposure of the surgical field because part of its wavelength spectrum is included in therapeutic range, thus indicating the possibility of PhT.

Objectives: To evaluate possible 5-ALA mediated PhT after GBM gross total resection (GTR).

Methods: Authors retrospectively analyzed 146 patients operated from GBM between 2012 and 2020. From them, 33 patients were finally included in the analysis with the objective to homogenize the sample. GTR, WVL exposure of the surgical cavity during hemostasis, and same adjuvant chemotherapy and radiotherapy protocol were administered in all cases. Two comparison groups were created considering 5-ALA administration (Group A: 5-ALA, and group B: no 5-ALA), and differences regarding recurrence distance location from the border of the surgical cavity (Up to 1 cm vs. Beyond 1 cm), and time to recurrence were analyzed.

Results: When evaluating recurrence location, group A presented minor recurrence rate within the first cm from surgical cavity (RR = 0.503; 95%CI: 0.301-0.891; p = 0.046). Differences regarding time to recurrence tended favorable for group A (HR = 0.545; 95%CI: 0.218-1.362; p = 0.188).

Conclusions: Possible 5-ALA mediated PhT may have been detected after GBM GTR.