Contribution of low-molecular weight heparin addition to concomitant chemoradiotherapy in the treatment of glioblastoma multiforme.


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Abstract

PURPOSE: Glioblastoma multiforme (GBM) is the most common brain tumor in adults and has a very aggressive course. Median survival is as short as 2 years with standard treatment (chemoradiotherapy followed by adjuvant temozolomide). The purpose of this study was to determine the contribution of low molecular weight heparin (LMWH) addition to concomitant chemoradiotherapy in the treatment of GBM.

METHODS: All patients with newly diagnosed GBM between March 2004-May 2009 were evaluated. After surgical intervention (total, subtotal resection or only biopsy) all of them were treated with concomitant chemoradiotherapy (2 Gy daily, 5 days a week, 30 fractions, total tumor dose 60 Gy; and 75 mg/m² temozolomide, 7 days a week), followed by adjuvant temozolomide (6 cycles, 150-200 mg/m², 5 days every 28 days), with or without LMWH (4000 IU/day, 7 days a week, concomitant with radiotherapy) because of risk of thrombosis. The primary endpoint was the determination of progression-free survival (PFS) and overall survival (OS); secondary endpoints were 1- and 2-year OS survival.

RESULTS: 30 patients (13 patients in the group non receiving LMWH (LMWH-) and 17 patients in the group receiving LMWH (LMWH+)) were included in the study. Median age was 54 years (range 24-75). Median PFS was 57 and 38 weeks in LMWH+ and LMWH- groups, respectively (p=0.068). Median OS was 69 and 44 weeks (p=0.095), 1-year OS survival 84.6 and 41.2% (p=0.016), and 2-year OS survival 38.5 and 5.9% in LMWH+ and LMWH-, respectively (p=0.061). No significant difference was noted between the two groups for grade 3-4 toxicity (p=0.05).

CONCLUSION: Better PFS, OS and 2-year OS survival were obtained in present study with the addition of LMWH to concomitant chemoradiation for GBM but without statistical significance. One-year OS survival was statistically significant favoring the LMWH group. The addition of LMWH did not increase temozolomide toxicity.

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