



**CO-09. Hypofractionated
stereotactic reirradiation in
patients with high-grade gliomas**

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Purpose or objective: To evaluate the acute toxicity and efficacy of reirradiation with hypofractionated stereotactic radiotherapy in patients with histological proved gliomas.

Material and methods: From July 2012 to January 2017, we treated and analyzed 30 patients with high-grade recurrence GII-IV gliomas. All treatment decisions were based on multidisciplinary approach, all patients signed consent form before treatment. In all cases countouring was based on MRI and CT fused images, and in two patients we used metionine C11 PET-CT for improving delimitation the gross tumor volume (GTV).

Treatment was performed with the Novalis ExacTrac image guided system which consists of a non-invasive frame-based mask system that allows us to perform stereotactic treatments. Treatment plan was performed on Iplan-net (v. 4.1) with either multiple non coplanar conformal beams or dynamic conformal arcs, with 3D conformal radiation therapy or IMRT if it was needed. Novalis IGRT is based on two X-ray images that fuse bone structures with DRR reconstructed from CT simulation scan. Robotic 6D coach corrects with submillimeter accuracy translational and rotational errors before treatment.

Results: Medium age was 50.8 years. Seventeen patients were male and 13 female. Primary tumor at diagnose was grade II glioma in 8

patients, and grade III-IV in 22 patients. Median time to reirradiation was 32.5 months; in low grade gliomas median time to reirradiation was 60.5 months, being 22 months in high grade tumors. Recurrences were identified on the basis of radiographic presence of tumor progression on T1;T2 weighted MRI. 13 patients underwent surgery before reirradiation. Medium PTV volume was 107.56 cm³ (12 -240 cm). The prescribed dose was 30 Gy in 5 fractions or 40 Gy in 10 fractions depending on the size and location of the tumor. All patients maintained prophylactic dexametasone for at least two weeks after the treatment completion. No patients demonstrated clinically significant acute morbidity, and all patients were able to complete the prescribed radiation dose without interruption. No patient required hospitalization or surgery for early acute or delayed toxicity. The median survival from the reirradiation was 11 months. Overall survival of the sample was 34 months; 49.5 months in grade II, and 30.6 months in high grade.

Conclusion: Hypofractionated reirradiation seems feasible and well tolerated. No significant toxicity was observed.