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Abstract

Radiotherapy is as Effective as Surgery in terms of Local Control in Patients with Uveal Melanoma

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Objectives: Evaluation of treatment results of patients who received stereotactic radiosurgery and fractionated stereotactic radiotherapy (SRS-FSRT) for uveal melanoma.

Methods: We retrospectively evaluated 163 patients who received SRS-FSRT between 2007 and 2013 with the diagnosis of uveal melanoma. Treatments were applied with CyberKnife® (Accuray Inc., Sunnyvale, CA, USA). Median age of the patients was 54 years (18-82 years). Ninety-six (59%) patients were male, and 67 (41%) patients were female. The tumor was located in the choroid in 146 patients (90%), and in the iris ciliary body in 17 patients (10%). According to the Collaborative Ocular Melanoma Study (COMS), tumor size was small in 8 (5%), medium in 49 (30%), and large in 106 (65%) patients. SRS-FSRT was applied in median 3 (1-3) fractions with a total of median 54 Gy (10-60 Gy). Median maximum GTV dose was 63 Gy.

Results: Median follow-up time was 16 months. Local recurrence and distant metastasis developed in 27 and 16 patients, respectively. Median local recurrence-free time was 14 months, and distant metastasis-free time was 17 months. Complete and partial response was observed in 3 and 54 patients, respectively whereas the lesion was stable in 55, and progressive in 49 patients. 1 patient was succumbed to death because of the disease, and 1 patient because of other reasons. In 36 patients, enucleation had to be performed after SRS-FSRT. The reason for enucleation was progression in 27, and complication in 9 patients. The rates of 2-, and 5-year overall survival (OS) were 98.3%, and 98.3%; disease-free survival (DFS) was 73.3%, and 28%; local recurrence-free survival (LRFS) was 77.5%, and 68.2%; and distant metastasis-free survival (DMFS) was 87.3%, and 29.4%. In both univariate and multivariate analyses, COMS size and SRS-FSRT dose were statistically significant prognostic factors for DFS and LRFS. No statistically significant factor was detected for OS or DMFS in univariate or in multivariate analyses. When 106 patients who had COMS large tumors were analyzed separately, we found 2, and 5-year rates of OS 97%, and 97%; DFS 64%, and 24%; LRFS 70%, and 60%; DMFS 86%, and 28%, respectively. Enucleation was performed in 30 patients after SRS-FSRT.; the reason for enucleation was progression in 23, and complication in 7 patients. In this group of patients, univariate analysis revealed SRS-FSRT statistically significant for both DFS and LRFS (p=0.01 and p=0.004, respectively). Similarly, in multivariate analysis SRS-FSRT dose was statistically significant for DFS (p=0.009) and LRFS (p=0.005).

Conclusions: We detected that radiation dose applied is of great importance in uveal melanoma

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patients in terms of disease-free survival and local control; the best results were achieved in patients who received =45 Gy. In patients with COMS large tumors in whom enucleation is recommended in the literature, organ preservation was achieved in 72% by the help of SRS-SFRT.