Fakultät für Medizin

Dokumenttyp: journal article

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Abstract: PURPOSE: To provide a 10-year update of hyperfractionated radiation therapy (Hfx RT) in adults with incompletely resected supratentorial low-grade glioma. METHODS AND MATERIALS: A total of 37 patients were treated with 55 Gy in 50 fractions in 25 treatment days in 5 weeks to tumor plus 2 cm, and additional 17.6 Gy given in 16 fractions in 8 treatment days in 1.5 weeks to tumor plus 1 cm, (1.1 Gy twice daily). Total dose was 72.6 Gy in 66 fractions in 33 treatment days in 6.5 weeks. RESULTS: After a median follow-up time of 121 months for all patients, the median survival time (MST) for all 37 patients was 145 months, whereas 10-year survival rate was 67%. Median time to tumor progression (MTP) has not yet been attained, but 10-year progression-free survival (PFS) rate was 62%. There was no difference in survival or PFS regarding gender, age, location, site, size, CT enhancement, and histology; whereas lower KPS, higher neurologic status, and lesser extent of surgery had an adverse influence. Infield progression occurred in 15 (88%), whereas in only 2 (12%) patients, tumor progression was described as marginal. Brain necrosis has not been observed so far. Autopsy findings confirmed recurrent glioma and excluded post-RT necrosis in 14 (38%) patients. Of those, 7 (50%) patients had either Grade 3 (n = 4) or Grade 4 (n = 3) glioma. CONCLUSION: High-dose HFX RT is
effective with mild to moderate toxicity. Further studies are warranted with more patients before testing it against standard fractionation RT in this patient population.