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RESULTS OF POSTOPERATIVE RADIOTHERAPY IN LOW-GRADE GLIOMAS

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Purpose: To evaluate results, prognostic factors and patterns of failure of the postoperative radiotherapy (PRT) for Low-Grade Gliomas (LGG).

Methods: Between 1985 and 1995, 158 patients with LGG (WHO II) received PRT. There were 116 astrocytomas, 17 mixed oligoastrocytomas, 25 oligodendrogliomas. Median age was 39 years (range: 17-74). Conventional treatment techniques and doses were employed (median total dose- 58 Gy, median dose per fraction – 2 Gy). All known parameters with possible influences on prognosis were analysed in univariate analysis (UA). Then a multivariate analysis (MA) was performed for variables with significance level $p<0.2$ in UA. CT scans taken prior to initial surgery and at the time of recurrence have been compared to define the recurrence pattern in relation to the initial tumour site. Initial and recurrent tumour were drawn in the simulator films in order to precise the failure pattern in relation to irradiated volume. Survival after recurrence (SAR) was analysed using Kaplan-Meier method and prognostic factors were analysed using logrank test.

Results: The minimum follow-up period for alive patient was 52 months. The 5- and 10-year actuarial overall survival rate were 55- and 41% respectively. The actuarial progression free survival rate were 48% and 29% for 5 and 10 years respectively. MA revealed that good WHO performance status ($p=0.00001$), duration of symptoms before treatment >12 months ($p=0.00003$), seizures at presentation ($p=0.0001$), age < 45 years ($p=0.01$) and gross total resection ($p=0.03$) are associated with increased survival.

Median time to recurrence was 49.5 months (range: 1-134). The precise localisation of recurrence was possible in 69 pts (73%). All but three pts recurred within the initial tumour margin. Two of them recurred at 1-3 cm of the initial tumour margin, one recurred at distance, in the controlateral hemisphere. The last one was the only case of recurrence outside the previously irradiated volume. Median SAR was 8 months (range: 0.5-43). Information about treatment of recurrence was available in 76 pts (81%) – (11 - surgery, 9 – surgery and chemotherapy, 2 – surgery and radiotherapy, 8 – surgery, radiotherapy and chemotherapy, 1 – radiotherapy, 19 – chemotherapy, 26 – supportive care). There was no correlation between any treatment method and patient related parameters in the Spearman's rank test. In univariate analysis only addition of chemotherapy to recurrence management ($p=0.001$) and duration of symptoms before initial surgery >12 months ($p=0.004$) were associated with increased SAR. Surgery at recurrence and patient related parameters (age, performance status, neurologic function, seizures) did not influence survival.

Conclusions: Long-term results of the treatment were unfavorable for a majority of patients with LGG. Good WHO performance status, duration of symptoms before treatment >12 months, seizures at presentation, age < 45 years and gross total resection are associated with increased survival. Our data confirm that limited-volume irradiation for LGG is an adequate approach. Management of failures after PRT of brain tumours remains a therapeutic challenge. Our results show that chemotherapy at recurrence significantly improves survival. Surgery was not effective treatment at recurrence.

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PROGRESS IN PALLIATIVE RADIOTHERAPY

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Palliative irradiation is given to about 40% of cancer patients receiving radiotherapy. The large number of patients stand in sharp contrast to the scarce number of publications related to this type of cancer therapy. It is necessary to emphasize that palliative radiotherapy should be administered according to the different principles than curative treatment. The general principles governing palliative use of irradiation, defined by R. Paterson in 1956, seem to be still valid, However, since that time a substantial progress has been made. The main elements of this progress, and the main directions of research are related to:

1. optimisation of fractionation schedules /including hyperfractionation/;