Recurrence pattern analysis of primary glioblastoma.

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Abstract

OBJECTIVE: The typical recurrence of a glioblastoma occurs locally, usually within 2 cm from the original lesion. With the improvement of surgery techniques, more aggressive surgical strategies have become feasible, resulting in a significantly increased rate of complete resection. Therefore, we were interested, if these improvements are also reflected by the tumor recurrence pattern.

PATIENTS AND METHODS: Inclusion criteria were: first diagnosis of glioblastoma, followed by standard adjuvant radio-chemotherapy and histologically proven tumor recurrence. Patients were divided according to the recurrence pattern: patients with a local vs. distant recurrence vs. both recurrence patterns. Data were correlated with extend of resection, molecular tumor configuration, clinical status and survival data.

RESULTS: Between 2007 and 2014 we could include 97 GBM patients in this single center, retrospective study. Local, distant or combined tumor recurrence was observed in 77 (79.3%), 10 (10.3%) and 10 patients (10.3%), respectively. Median PFS of all patients was 8 months (m), median OS 20m. Median PFS for patients with local recurrence was 7m versus 13m for patients with distant recurrence vs. 9m for patients with both recurrences (p=0.646). Median OS was 21m vs. 20m (vs. 14m (p=0.098)), respectively. Regarding MGMT methylation status no correlation regarding recurrence pattern could be observed.

CONCLUSIONS: Despite complete resection of the contrast-enhancing tumor, the majority of recurrences occurred locally. Patients with distant tumor recurrence presented an increased PFS. Therefore, to gain a local control maybe we have to shift toward an even more aggressive "supramarginal" resection, using extensive intraoperative monitoring to avoid permanent deficits.