Title

SURG-14. DOES WAITING MATTER? HOW TIME FROM DIAGNOSTIC MRI TO SURGICAL RESECTION AFFECTS OUTCOMES IN NEWLY DIAGNOSED GLIOBLASTOMA

Journal

Neuro-Oncology, 21(Suppl 6)

ISSN

1522-8517

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Publication Date

2019-11-01

Peer reviewed

has demonstrated that every additional year of age at diagnosis however is associated with a 0.5% reduction in resection (p=0.02) and a 0.2% decline in Karnofsky performance (p=< 0.01). Patients with 1p19q co-deletion had a significant increase in progression free survival (PFS) (p=0.04). No significant variables were found to predict the risk of second surgery. Patients with eloquent tumour locations were significantly less likely to suffer post-operative neurological deficits (p< 0.01) Provisional analysis of our case series demonstrates an excellent extent of resection for our cohort of grade two glioma patients. 1p19q co-deletion in this group was significantly associated with improved PFS. Full analysis of the entire patient cohort will be available in time for presenting.

SURG-11. PATTERNS OF RECURRENCES OF OLFACTORY NEUROBLASTOMA AFTER SURGICAL RESECTION

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INTRODUCTION: Patterns of failure in patients with olfactory neuroblastoma (ONB) according to two surgical approaches, craniofacial resection (CFR) and endoscopic surgery (ENDO), have yet to be analyzed. METHODS: We retrospectively reviewed 30 patients with surgically treated ONB between January 1995 and October 2018. Sixteen (53.3%) patients underwent CFR (9 CFR alone, 7 ENDO-assisted CFR) and 14 (46.7%) underwent ENDO. Twenty-one (70.0%) patients underwent post-operative radiotherapy (RT). RESULTS: At a median follow-up of 53.8 months (range 10.4–195.3), the 5-year progression-free survival (PFS) and 10-year overall survival were 37.3% and 57.5%, respectively. Patients with adjuvant RT had a 5-year PFS of 46.7%, whereas those treated with surgery alone had a 5-year PFS of 19.4% (p = 0.01). Locoregional failure (LRF) occurred in ten patients (median 59.6 months after initial diagnosis; range 12.7–59.7). Neck node metastasis occurred in 23.3% (7 of 30). Five patients with ENDO showed LRF and underwent proper subsequent treatments with either surgery or adjuvant RT. Approximately 31.3% patients (five patients) in the CFR group experienced distant metastasis in the intracranial dura region (median 116.4 months after initial diagnosis; range 2.6–142.4). Three of four patients who developed LRF after CFR developed dura-based metastasis. CONCLUSIONS: Both dura-based and neck node metastasis in the delayed phase were distinct patterns of failure in ONB. Patterns of recurrence differed based on surgical approach; dura-based metastases were common after CFR. LRF was the distinct failure pattern in ENDO, but could be successfully salvaged. Treatment outcome was improved considerably with RT following surgical resection.

SURG-12. "NANOPASTE" THERAPY AS POTENTIAL TREATMENT OPTION FOR RECURRENT GLIOBLASTOMA

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BACKGROUND: We recently showed that intracavitary thermotherapy with superparamagnetic iron-oxide nanoparticles can induce persistent inflammatory reactions which might lead to long-term stabilization in recurrent glioblastoma (GBM) patients. METHODS: Here, we report further data from a series of ten recurrent GBM WHO IV patients (IDH WT, MGMT: methylated 30%, unmethylated 70%; median age: 59 years) who were treated with intracavitary thermotherapy after coating the resection cavity wall ("NanoPaste") with NanoTherm® particles (MagForce AG, Berlin, Germany). All patients underwent six one-hour semi-weekly hyperthermia sessions in an alternating magnetic field (mean maximum temperature 52.3° C, SD +/- 6.0 °C). Six patients received concurrent radiotherapy at a dose of 39.6 Gy (5 x 1.8 Gy/week). RESULTS: No major side effects were observed during active treatment. However, all patients developed cerebral edema and increasing clinical symptoms during treatment follow-up (median 92 days, range 73 to 144). Patients were treated with dexamethasone and, if necessary, underwent re-operation to remove nanoparticles (n=5). Histopathology revealed sustained necrosis and large amounts of nanoparticles without evidence for tumor activity as well as a prominent inflammatory reaction characterized by increased T-cell and myeloid cell infiltration. Median overall survival (mOS) for the study population was 10.1 months (CI 95% 8.0–12.2). A survival benefit was observed for patients treated at first recurrence (n=5) when compared to patients treated at second recurrence or later (mOS = 20.6 vs 9.4 months). Patients who received thermotherapy and concurrent radiotherapy (n=6) showed longer mOS than patients treated with thermotherapy alone (17.3 vs 8.6 months). Two patients had long-lasting treatment responses > 23 months with one patient still alive at 3.5 years after treatment without receiving any further therapy. CONCLUSION: Our results warrant further investigations. A European clinical registry will be rolled out to further evaluate the potential of "NanoPaste" therapy for patients with recurrent glioblastoma.

SURG-13. DAY-CASE IMAGE-GUIDED BIOPSY FOR BRAIN TUMOURS: A DECADE OF EXPERIENCE FROM A SINGLE NEUROSURGICAL UNIT IN THE UNITED KINGDOM

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In the United Kingdom widespread adoption of day-case image-guided biopsy (DIB) for brain tumour has yet to develop. We review a decade of experience of DIB for suspected supra-tentorial brain tumour and recommend discharge criteria for patients post-operatively. 30-day complications, post-operative admissions into hospital and patient satisfaction are examined. METHODS: Published protocols and procedures for DIB of brain tumours were used. Tissue samples were sent for fixed histological preparation without intraoperative neuropathological assessment. All patients undergoing an image-guided biopsy for tumour were retrospectively identified from operative logbooks (01/10/2006–30/09/2016), and information recorded from online records. Patients completed satisfaction questionnaires. RESULTS: 706 image-guided biopsies for supratentorial tumour were performed of which approximately 60% were identified pre-operatively as candidates for DIB. 92% of DIB patients were successfully discharged 6 hours postoperatively. 4.5% of DIB patients were admitted directly from the day-case unit following identification of a postoperative haematoma >2 cm diameter on CT head performed at 4 hours. 3/401 DIB patients (< 1%) required surgical evacuation for the haematoma, all made a full recovery, with no delay to commencing their oncological management. A diagnostic accuracy of 98% was achieved. Overall 90% of patients were satisfied about the timing of their discharge from hospital and 92.5 % felt they had enough medical support following discharge. DISCUSSION: Conscious sedation with enhanced recovery techniques, lack of intra-operative neuropathological analysis and a stream lined service with robust communication between patients, carers/families and the oncology allied medical professionals has ensured that DIB for diagnosis of tumour is safe, reliable and feasible for most patients and is not associated with increased morbidity or mortality. The procedure is well tolerated with good patient satisfaction. We recommend that patients with a good pre-operative functional baseline, requiring a supra-tentorial biopsy are offered day-case surgery in a dedicated unit specialising in this procedure.

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Surgical resection is standard of care for patients with lesions concerning for high-grade glioma on MRI scan. There is no consensus on the urgency of the procedure for patients with good clinical performance status. Treatment history and functional outcomes were collected retrospectively from the electronic medical record for 105 consecutive patients with newly diagnosed WHO Grade IV gliomas who underwent surgical resection at the University of California, San Francisco in 2014 and 2015 (41% female, average age = 61.25). Median preoperative KPS score was 80. Median wait time to surgery was 11 days after the initial MRI scan (range: 0–213 days). Mean tumor volume at the time of initial MRI scan was 29.0 cm^3 (SD = 26.1 cm^3), which did not significantly differ from the mean pre-operative tumor volume of 31.2 cm^3 (SD = 27.3 cm^3). In this retrospective cohort, patients with larger glioblastomas were taken to surgery more quickly. Patients who presented to the emergency room were more likely to wait less than 7 days (p < 0.001). Patients who waited less than 7 days had a larger initial and pre-operative tumor volume compared to patients who waited between 7–21 days and patients who waited over 21 days (p=< 0.001, p=< 0.001). Tumor growth occurred in 10% of patients who waited one week or less, 26% of patients who waited one to three weeks, and 55% of patients who waited over 3 weeks. Overall survival was not significantly affected by wait time until tumor resection (p=0.52). Additionally, Tumor growth was not associated with postoperative outcomes including postoperative KPS score, postoperative deficits, 3-month follow up KPS score, overall survival, and survival after surgery. In conclusion, longer wait time to surgery does not impact overall survival, pre-, and post-operative KPS, but the tumor is likely to grow in the interim.