

Conclusions: In patients with recurrent GBM, CTV-Gd and CTV-T2 differed considerably from CTV-MPET. At least 5 mm margin to CTV-T2 would be necessary in the target volume delineation of recurrent GBM to cover CTV-MPET in the re-irradiation planning.

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Deformable MRI fusion for intracranial SRS: Can we trust?
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Purpose/Objective: The aim of this study is to evaluate the reliability of MRI fusion for the determination of target volume when performing CT based intracranial stereotactic radiosurgery.

Materials and Methods: Patients treated with CT based intracranial stereotactic radiosurgery with various diagnoses are included in the study. All patients were immobilized using stereotactic thermoplastic masks prior to simulation. The planning CT was obtained both with and without iv contrast with 1mm slice thickness. The images obtained were then fused with 3D, T1 weighted MR images with contrast by two different platforms (Eclipse 10.0, Velocity 3.0 rigid and Velocity 3.0 deformable). The target volume was contoured by the same physician in four different image sets (planning CT with iv contrast, planning CT fused with MRI by Eclipse software, planning CT fused with MRI with Velocity rigid fusion algorithm software, planning CT fused with MRI with Velocity deformable fusion algorithm software). The target volumes delineated on planning CT with iv contrast were determined as reference volume. The intersections of all volumes delineated with three different fusion algorithms were produced and ratios of the intersections were calculated. Values close to one was determined as the unit of similarity and were compared with Paired-Samples t test. The center of each target was determined and offsets were calculated according to the reference.

Results: Eight intracranial targets were evaluated. All of the targets evaluated were clearly visualized in the planning CT with iv contrast. Six of these lesions were metastases while the remaining two were meningioma. The median volume of the delineated targets on the planning CT with iv contrast was 9.53 cc. The intersecting volume with three different fusion algorithms (Eclipse fusion, Velocity rigid fusion and Velocity deformable fusion) was 8.08, 6.74 and 6.84 cc respectively. The ratios of the intersections were 1.20, 1.42 and 1.40 where all of these differences were significant ($p=0.004$, $p=0.010$ ve $p=0.009$). The maximum offset in each fusion was in Y axis and the most in velocity deformable fusion (mean 0.3 cm; 0.02-0.76cm). There was difference between offsets for the lesion which are close to or away from the bone.

Conclusions: Determining the target volume with MRI fusion when performing CT based intracranial stereotactic radiosurgery may not be very reliable compared to obtaining a planning CT with iv contrast. Careful attention must be paid to this as this might affect not only the treatment outcomes but also the late toxicity.

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Salvage radiosurgery for selected patients with recurrent malignant gliomas

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Purpose/Objective: To analyse the survival after salvage radiosurgery and to identify the prognostic factors
Materials and Methods: We retrospectively reviewed 87 consecutive patients, with recurrent high-grade glioma, that underwent stereotactic radiosurgery between 1997 and 2010. We evaluated the survival after initial diagnosis and after re-irradiation. The prognostic factors were analysed by bivariate and multivariate Cox regression model.

Results: The median age was 48 years old. The primary histology included anaplastic astrocytoma (47%) and glioblastoma (53%). A margin dose of 18Gy was administered in the majority of cases (74%). The median survival after initial diagnosis was 21 months (39 months for anaplastic astrocytoma and 18.5 months for glioblastoma) and after re-irradiation was 10 months (17 months for anaplastic astrocytoma and 7.5 months for glioblastoma). In the bivariate analyses the prognostic factors significantly associated with the survival after re-irradiation were: age, tumour and treatment volume at recurrence, recursive partitioning analyses classification, karnofsky performance score, histology, and margin to the planning target volume. Only the last four showed significant association in the multivariate analyses.

Conclusions: stereotactic radiosurgery is a safe and may be an effective treatment option for selected patients diagnosed with recurrent high-grade glioma. The identified prognostic factors could help to individualise the treatment.

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A decade of treating Kaposi's sarcoma: presentation, treatment and outcomes

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Purpose/Objective: Kaposi's sarcoma (KS) is a low grade malignant vascular endothelial tumor which has a viral etiology; KS herpes virus (KSHV). It was found to be endemic in the Central and Southern Africa. Sporadic cases are found in the Mediterranean region. With the advent of HIV- AIDS epidemic, the incidence of Kaposi's sarcoma has increased. The Aim of the study is to determine the demographics of the disease, treatment and their outcomes.

Materials and Methods: The study is a retrospective study of patients with Kaposi's sarcoma who presented to the unit from 2004-2013. It evaluated all histologically confirmed cases of KS for demographic information, HIV status, degree