Central Nervous System

Best oral presentation: Glioblastomas with complete resection: Changes in relative cerebral blood volume in white matter irradiated
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Introduction. On follow up MRI studies in patients with GB, it is difficult to differentiate between treatment side effects or tumor progression. Radiation induces changes in brain parenchyma that may mimic tumor recurrence or progression, and concomitant treatment with temozolomide due to the radiosensitizer effect can increase those changes. Therefore MR images after treatment are difficult to interpret. We studied radiation-induced changes in normal white matter to define what changes might be attributable to radiotherapy.

Material and Methods. We analyzed magnetic resonance imaging (MRI) perfusion studies in 9 patients who have undergone complete tumor resection. MRI was performed on a 3 T Unit (Siemens) using the susceptibility perfusion technique. We quantified the rCBV drawing four regions of interest (ROI) in normal white matter located in: ROI90 (area of high isodose (90–100%)); ROI50 (area of medium isodose (50–90%)); ROI30 (area of low isodose (30–50%); and ROI0 (In white matter not receiving radiation). Quantification was performed on MRI studies in the middle of radiation treatment, at the end of radiation treatment, and 4 weeks after completing the treatment.

Results. We found an increase in rCBV in normal white matter that received radiation. This increase was greater in areas of maximum irradiation. These changes were seen in all follow-up studies. We observed changes in the rCBV, even in the range of lower doses of irradiation, when the doses delivered corresponded to 6–9 Gy.

Conclusions. Our study shows changes in the rCBV of normal white matter. These changes can tell us about the likelihood of toxicities and can help in assessment of treatment response.

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High grade glioma: Integrated boost and temozolamide with IMRT and IGRT
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Introduction. From 2011 we started our clinical IMRT treatments (IMRT), either “step and shoot” or VMAT (Volumetric Modulated Arc Therapy). We decided to use for the treatment an altered fractionation with “integrated boost” and Temozolamide. Objectives. Our goal is to analyze the first patients with high grade glioma with this protocol, feasibility, tolerance and treatment outcomes. Method Eight patients (4 men and 4 women), mean age 56 (43–69) years, were enrolled between May 2011 and October 2012. Two cases with AA (anaplastic astrocytoma), three cases with GM (multiforme glioblastoma), a case with anaplastic oligodendroglioma (AO), a case with low-grade glioma that had progressed radiologically to high grade but no biopsy and the last patient

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