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Central nervous system

¹¹C-Methionine-Positron Emission Tomography as prognostic factor of recurrence in glioblastoma

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Background and purpose. Although chemoradiotherapy has demonstrated a survival benefit in patients diagnosed of glioblastoma (GB), majority of patients present intracranial tumor recurrence. Radiation planning using ¹¹C-Methionine Positron Emission Tomography (MET-PET) may identify regions of target volume with different metabolism that may have prognostic implications. Our primary end point was to evaluate if the MET-PET initial distribution could prognose the location of recurrence in patients with. The secondary end point of the study was to analyze the effect of trimodal image fusion (CT-MET-PET/MR) for GTV delineation in the RT-planning process.

Materials and methods. Target volumes were outlined using trimodality image fusion. GTVMET was defined as the tumor volume in MET-PET, GTVGad was the gadolinium contrast-enhancement volume on MRI. Tumor/non-tumor ratio (T/NT) and maximum Standard Uptake Value in MET-PET (SUVmax) were determined. Additional volume information was obtained calculating subtraction of GTVMET–GTVGad in order to assess the volume that exclusively MET-PET added to the definitive GTV (GTVDEF). Tumor recurrences were delineated in the MRI/MET-PET images and co-registered with the previous GTVMET in order to delimit the initial metabolic uptake in the planning MET-PET. The association of postoperative prognostic factors and progression-free survival was evaluated using Chi Square tests.

Results. With a median follow-up of 18.7 months, 40 patients were included in the study. MET-PET detected a median tumor volume of 4 cm³, ranged from 0.1 cm³ to 41.3 cm³ that were not identified by MRI. The median T/NT ratio was 2.3. The recurrent volume delineated in the MRI image correlates with the highest uptake value in the planning MET-PET in 30/40 patients (70%). Medians PFS was 20.4 months (95% CI: 16.3–24.5), and in subjects with a higher T/NT ratio, a shorter PFS (<24 weeks) is 4.5 times more likely ($p=0.025$; odds ratio: 4.5; 95% CI: 1.2–16.9).

Conclusions. MET-PET before IMRT in resected GB patients provides additional diagnostic information that can influence the GTV delineation. MET-PET appears to identify areas at highest risk for recurrence in 70% of patients. The incorporation of MET-PET in radiation treatment planning should be evaluated in future studies to determine the hypothetical local control benefit of GB after radiation therapy.

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A case of metastatic myxopapillary ependymoma

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Introduction. Myxopapillary ependymomas are histologically benign tumours (WHO classification) that usually they tent a very indolent course. However, atypical types have an aggressive evolution.

Aims. We want to warning about atypical forms can need follow-up for long time because they can metastasize.

Methods. We describe a 15-years-old patient diagnosed of T11-L3 myxopapillary ependymoma (WHO classification grade 1) that was treated with surgery. After two years a new surgery was necessary for local recidive. The next year was diagnosed of new lesions localized in conus medullarys. In this time, surgery and radiotherapy were realized (5040 cGy, 180 cGy per fraction). For 13 years the patient had no recurrence; due to this, the follow-up was finished. After 4 years the patient begins