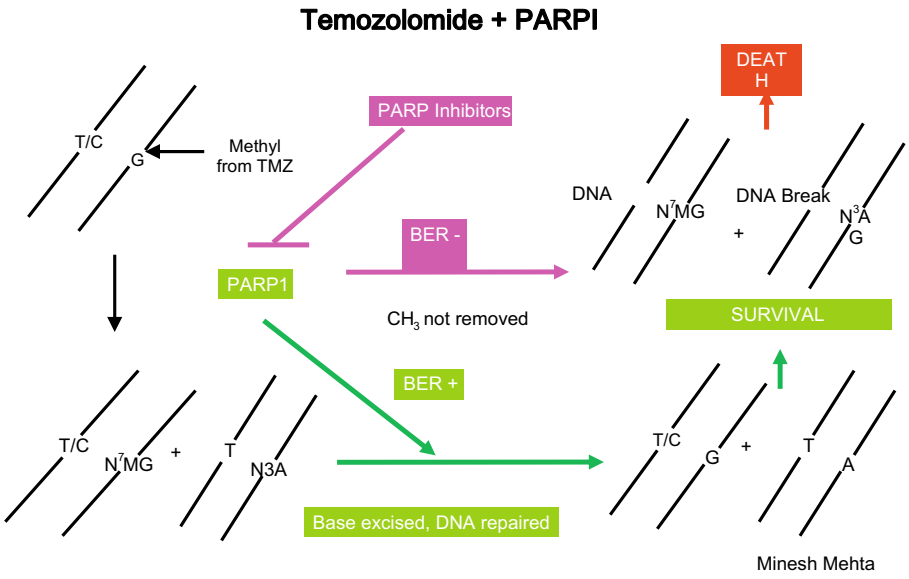

Fig. 2. Image reported from Metha MP, X Congresso Nazionale e Corso Residenziale dell'Associazione Italiana di Neuro-Oncologia, Napoli 7–9 Novembre 2005.

position N-3 of the adenine, whose damages are mended then by enzymes of the family of the PARP. The latter two are repaired by enzymes in the base excision pathway, which can be inhibited by PARP inhibitors (Fig. 2).

At present, are ongoing clinical trials using MGMT or PARP inhibitors to overcome the TMZ resistance.[6]

The TMZ, in preclinical data, shows an additive effect with the radiation.[7]

In conclusion, in the treatment of glioblastoma, further studies are need to the purpose to integrate basic research and clinical practice.

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CONTRIBUTION OF THE FUNCTIONAL IMAGING IN THE RADIOTHERAPY TREATMENT PLANNING FOR MALIGNANT GLIOMA: REVISION OF THE LITERATURE

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Currently, despite the efforts to improve the standard treatment [surgery, radiotherapy (RT) and chemotherapy], the median survival of patients with glioblastoma (GBM) is poor and almost of patients die for local recurrence, both to the inside and to the outside of the tumoural bed. In consideration of the disappointing gotten results, the question that emerges if it is possible to improve radiotherapy planning integrating of new imaging techniques. To the moment the standard is the use of the imaging CT and Magnetic Resonance Imaging (MRI)-based, but for instance MRI is not able to differentiate residual tumour and post-operating modifications. In addition to the anatomic and morphological findings available with con conventional imaging methods, advanced MRI and Nuclear Medicine (NM) techniques can give information on the metabolism of malignant glioma cells. In this study we have analysed the following methodic of functional imaging: 123I-alpha-methil-tyrosine-single photon emission CT (IMT-SPECT), single-voxel proton magnetic resonance spectroscopy (1H-MRS), functional MRI, diffusion tensor imaging (DFI), [F-18]-fluorodeoxyglucose positron tomography (18FDG-PET) and L-(methyl-11C)-labelled methionine positron emissions tomography (MET-PET), to the purpose to integrate her in the target delineation and in radiation dose escalation. Every of the new techniques show potentiality and limits. For instance, in comparison with 1H-MRS, 123I-IMT-SPECT introduces best results in to distinguish amongst recurrent and/or residual tumour from the post-operative changes and can be useful in the definition of the volume target with greater accuracy and in consideration of '*the high specificity of the IMT uptake for the tumour tissue, the findings on IMT-SPECT may significantly modify the target volumes for radiotherapy planning. This will help to focus the high irradiation dose on the tumour area and to spare normal brain tissue*'.[1] The 1H-MRSI showing a high specificity and sensibility in to distinguish between therapy-related effects and relapse, it finds her application in the assessment of probability of response or failure to the treatment. Since, radiation dose escalation in malignant glioma may lead to an increase of the disease control, the 18FDG-PET may be of great utility in to define the regions for which to plan to radiation dose boost. The assessment of diffusion properties may add information, during the follow-up, in to distinguish between recurrence and radiation effects. In post-

operative setting the MET-PET showing a greater specificity for the tumoural tissue can help in to delineate the GTV with great accuracy. In conclusion the use of the new functional imaging techniques in association and complementarily to the conventional images, CT and MRI, he will be able in a next future to improve the results in the care of the malignant gliomas and the relationship efficacy and toxicity in the radiotherapy treatment.

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