Diffusion-Weighted MRI 3T in the Evaluation of Patients With Endometrial and Cervical Cancer: Comparison With Contrast-Enhanced FDG PET-TC

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Functional imaging, as diffusion-weighted magnetic resonance imaging (DWI-MRI) and fluorodeoxyglucose (FDG) positron emission tomography (PET/CT), is increasingly used in oncology. Derived parameters, as ADC (apparent diffusion coefficient) and SUV (standardized uptake value) are currently used in oncological patients. The purposes of our study are: a) to evaluate the correlation between these two parameters and b) to assess their correlation with clinical risk-class and stage in patients with gynecological cancer.

33 patients were included in the study (mean age 54 ± 15 years). 18 were affected by endometrial cancer and 15 by squamous cervical cancer. All patients underwent MRI and FDG-PET/CT in the same day. Tumor ADC and SUV values were computed independently. All patients were subgrouped in different groups by histopathology and clinical risk class.

A significant (p< 0.001) inverse correlation between ADC and SUV was found in the whole group of patients as well as in the 2 subgroups (i.e. endometrial and cervical cancer). In both subgroups SUV was able to stratify patients according to either histopathology and clinical risk class, while ADC could stratify only patients with cervical cancer according to histopathology.

Functional imaging in the study of gynecological tumors can give more information on these diseases in a non invasive way. The possibility to integrate these techniques in therapeutic plans can lead to reduce the probability of over-treatment.