

PREDICTIVE ROLE OF FDG PET/CT IN HEAD AND NECK CANCER TREATED WITH RADIOTHERAPY -PRELIMINARY RESULTS

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INTRODUCTION: FDG PET/CT provides crucial information for the proper staging assessment and radiotherapy planning (RTP) for head and neck cancer patients. Our aim was to search for therapeutic outcome predicting parameters in the pre-treatment imaging data.

METHODS: Retrospective evaluation was performed using PET/CT image datasets of 21 head and neck cancer patients. PET/CT was acquired before the therapy, used for RTP and repeated 3-6 months after the completion of therapy for response evaluation. From the pre-treatment image datasets we assessed the SUVmax, SUVmean, Metabolic Tumor Volume (MTV) and Total Lesion Glycolysis (TLG) values of the primary tumor. According to the results of the therapeutic response evaluation PET/CT and the clinical follow up two patient subgroups were created in relation to the presence or absence of viable primary tumor tissue. Subgroup related metabolic parameter evaluation was performed (Wilcoxon test).

RESULTS: After radiotherapy in 10/21 cases viable residual tumor tissue was detected on the restaging PET/CT image dataset and 11/21 subjects reached complete remission. For the therapeutic success prediction assessment we were unable to find any correlation with pre-treatment SUVmax and SUVmean values ($p=0.55$ ill. $p=0.32$). MTV and TLG parameters however provided statistically significant differences between the two patient subgroups / MTV ($p=0.008$), TLG($p=0.020$)/, as a summary MTV proved to be the most useful parameter for therapeutic response prediction.

CONCLUSION: Simple metabolic data provided by FDG PET/CT were unable to predict therapeutic response, while according to our preliminary results complex volume information containing parameters proved to be more useful for this purpose, thus their inclusion to risk stratification may have of additional value. Survey is planned to be followed with more subject and parameter inclusions.

