

ABSTRACT

TITLE: COMPARISON OF VARIOUS IMAGING MODALITIES FOR TARGET VOLUME DELINEATION, TREATMENT RESPONSE ASSESSMENT USING PERCIST CRITERIA AND PROGNOSTICATION ALGORITHM FOR PREDICTING REPOSE TO TREATMENT IN HEAD AND NECK CANCERS.

DEPARTMENT : RADIATION ONCOLOGY

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OBJECTIVE

To compare tumour volumes created using F 18 FDG PET CT scan before starting treatment and after completion of chemo radiation/radical radiotherapy to assess treatment response using PERCIST criteria in Head and Neck cancers and to create a prognostication algorithm to predict treatment response.

METHODS

This was a prospective cross-sectional study done in the Department of Radiation Oncology at Christian Medical College, Vellore. Patients with squamous cell carcinoma of the oral cavity, oropharynx, hypopharynx and laryngopharynx planned for radical irradiation with or without concurrent

systemic treatment were recruited and underwent a PET CT scan in planning position. These patients underwent a response assessment PET CT 12 weeks following treatment. Baseline diagnostic and staging advantage of PET CT, its role in RT planning, PET CT biomarkers were analysed. Response assessment was done by clinical examination and NPL scopy, RECIST and PERCIST and response assessment was analysed.

RESULTS

PET CT was beneficial in diagnosis, staging and detection of metastatic disease. It was useful in delineation of tumor volume and reduction in volumes. Baseline TLG was a good predictive biomarker with a low baseline value suggestive of good response to treatment. PERCIST calculated using change in SUL had good correlation with response. The patients who had complete metabolic response had a high negative predictive value suggestive of absence of disease. PET CT helped to differentiate abnormal scopy findings from diseased scopy by assessing decline in SUL value. PERCIST PMR patients with a normal scopy and complete response in RECIST had a significant drop in SUL, TLG and SUVmax compared to stable and progressive metabolic response. Change in TLG was a good marker to prognosticate response to treatment. Change in MTV was a prior biomarker to assess response.

CONCLUSION

PET CT was of use in diagnosis, staging, RT planning and response assessment. Baseline TLG was the best biomarker to prognosticate response to treatment. PERCIST SUL was the best way to assess response.