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Role of PET-CT in modern radiotherapy planning process of solid tumours

B Ravi Shankar, B V Madhavi, Suman Das, K Pradeep Bhaskar, Yogiraj, Anandkrishnan and **Sargunan Karthikeyan**
Queen's NRI Hospital, India

Background: Positron emission tomography (PET) allows functional imaging of structures by virtue of their ability to metabolise glucose and concentrate specific molecules which are labelled with positron emitting Radionuclides. Integrated computed tomography (CT) and PET more accurately characterise the metabolically active tissue. Together PET-CT has shown more sensitivity and specificity for diagnosis, staging, response assessment, during follow up for early detection of recurrence and target volume delineation in radiotherapy planning.

Aim: Aim of the study is to evaluate the technical challenges in the image registration of PET/CT and planning CT done in our hospital.

Methods & Materials: Our study included the patients who have attended OPD and received Radiotherapy (RT) during year 2014-2015 for various sub-sites. We have patients received RT for head and neck region, abdominal region, thorax and pelvis. The PET/CT images of the respective sub-sites were fused with the planning CT images using rigid registration fusion software and the target was delineated using the fused images.

Conclusion: Apart from few technical difficulties, rigid registration fusion algorithms of PET/CT images to the planning images after careful patient positioning helps the radiation oncologist in proper delineation of target volume.

Biography

B Ravi Shankar is one of the most renowned Cancer Specialist (Oncologist) of Visakhapatnam. Worked as a Senior Resident in Department of Medical Oncology IRCH AIIMS, New Delhi. He is the first Indian to become the Fellow of ESTRO in 2013 after successfully completing examination in Geneva Switzerland. He published a paper on concurrent nimotuzumab with radiation in locally advanced cancer of oropharynx and hypopharynx in journal of cancer therapy April 2015.

ravi_bellala@yahoo.co.in

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