

Conclusions. Thanks to the substitution of the traditional bolus to a Plasticine bolus, we managed a more homogeneous dose and achieve better results.

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Dosimetric effect of daily setup correction in prostate IMRT

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Objective. The aim of this work is to quantify the dose distribution degradation due to daily setup errors, taking into account the correction displacements provided by the analysis of daily cone beam CT images.

Method. This study was performed on the calculated IMRT treatment of a patient diagnosed with prostate adenocarcinoma. The prescribed dose was 78 Gy, at 2 Gy per fraction. The patient was immobilized in supine position, head resting on a pillow, arms crossed over the chest and both legs resting on the Combifix positioning system indexed to the treatment table. Prior to radiation therapy a 1 cm long fiducial marker (Visicoil) was implanted in the patient's prostate. Patient's preparation requirements were empty rectum and full bladder. The treatment was calculated with the treatment planning system (TPS) Xio and delivered with a Siemens Artiste linac. Daily megavoltage cone beam CT (CBCT) was performed taking the fiducial marker as a reference for the prostate location and positioning error calculation. In order to evaluate the dose distribution if no positioning errors had been corrected, copies of the treatment fields were obtained with the TPS and moved a distance equal to the displacement error detected. Taking into account all the displaced fields, the total dose distribution was obtained.

Results. The main results obtained in this study regard the PTV and rectum: the percentage of PTV that receives the 95% or higher of the prescribed dose would decrease from 95.73% to 76.45% if no setup corrections were performed and the mean rectum dose would increase from 44.51 Gy to 46.59 Gy.

Conclusions. In our centre, IMRT prostate treatments are performed with image guidance by means of a fiducial marker and daily CBCT. Daily patient setup corrections have proved to be adequate and yield a considerable difference in PTV coverage and rectum protection.

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Functions of radiotherapy technicians (TERTs) in the Hospital Universitario de Fuenlabrada

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Objective. The main task of TERTs is to participate in all phases of the radiotherapy process, collaborating with the radiation oncologist and radiation physicist and ensuring the highest quality of treatment. We describe the various functions within our centre.

Material and methods. Siemens Somaton Open CT Simulator and General Electric PET-CT Simulator: Checking and preparing the simulation chart, and the restraint systems appropriate for the condition and realization of CT simulation. Elekta Focal contouring Station: we delimit critical organs in the area of treatment Elekta XIO-Planning system: the dosimetry TERT prepares a treatment plan. After approval by the physicist and the radiation oncologist, she produces the dosimetric report. Two Siemens Artiste linear accelerators: Prepare the treatment set-up. Perform imaging verification using Cone-Beam protocol and/or orthogonal portal images in the first four days of treatment, and a weekly check. Register the displacement between the starting position and the corrected position of the patient, and calculate the average displacement. Transfer portal images or cone-beam scans for revision by the radiation oncologist.

Results. The application of radiotherapy treatments as prescribed; meet dosimetry and radiation protection standards, as well as the specific procedures of your unit; organize and schedule work using criteria based on quality, service and optimization of available resources; and management of medical and technical information under appropriate supervision.

Discussion. The Radiotherapy Technicians are professionals dedicated to the application of radiotherapy treatments under the direction and supervision of the Medical Specialist; they are responsible for performing all functions assigned to its category by the relevant Administration according to their training curriculum, and must keep up-to-date their knowledge in order to successfully perform their functions and duties

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