

THE EFFECT OF FIXED COUCH-ISOCENTER DISTANCE TREATMENT ON RADIOTHERAPY IN RECTAL CANCER PATIENTS

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Purpose : To improve the reproducibility of irradiated volume in treating rectal cancer patients with fractionations, we have developed a new isocenter determination method and tested its accuracy by comparison of portal and simulation films.

Materials and Methods : Patients were placed in the supine position with only a head restraint and feet immobilizer, During Computerized Tomography (CT), the isocenter was fixed at 7cm from the bed surface in the direction of the abdomen, after which the position was marked on the patient's body by means of laser projection. A rubber tube was attached for visualization on x-ray films. The isocenter was thus indicated on the CT scan. During the first treatment, a portal film was made for comparison with the simulation film, and displacement and rotation errors of the two were measured.

Results : Mean head-to-toe displacement was 1.3 ± 3.3 mm, left-right displacement was 1.9 ± 3.8 mm and anteroposterior displacement was 0.2 ± 2.0 mm. The mean coronal rotation was $0.76 \pm 2.84^\circ$, sagittal rotation was $0.52 \pm 0.76^\circ$ and transverse rotation was $0.04 \pm 0.33^\circ$.

Conclusion : Stabilizing the position of the pelvis on the treatment couch is a reliable method for treatment. Displacement in almost all directions was less than 5mm. The error for coronal rotation was slightly greater, but nonetheless within acceptable range. Therefore, this type of treatment localization method is a simple and reliable method.

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Key words: Fixed couch-isocenter distance, Radiotherapy, Rectal cancer, Anal cancer