

عنوان مقاله:

Utilization of Electronic Portal Imaging Device (EPID) For Setup Verification and Determination of Setup Margin in Head and Neck Radiation Therapy

محل انتشار:

مجله فیزیک پزشکی ایران، دوره 17، شماره 3 (سال: 1399)

تعداد صفحات اصل مقاله: 8

نویسندگان:

vajiheh vejani noghreian - *Department of Medical Physics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran*

shahrokh naseri - *Department of medical physics, Faculty of medicine, Mashhad University of Medical Sciences, Mashhad, Iran*

Mehdi Momennezhad - *Nuclear Medicine Research Center, Mashhad University of Medical Sciences, Mashhad, Iran*

خلاصه مقاله:

Introduction: Radiation therapy involves a multistep procedure; therefore, the error in patient set up is an inherent part of the treatment. Main purpose of this study was to determine the clinical target volume (CTV) to planning target volume (PTV) in head and neck cancer patients. Material and Methods: A total of 15 patients who had daily portal images during the treatment courses were randomly selected in the present study. Systematic (Σ) and random (σ) errors were evaluated in three directions. The Isogray treatment planning system and Elekta linear accelerator were used in this study. Moreover, we had used MOSIAQ software as arecord and Verify system. Setup margins were calculated using three published margin recipes, including the International Commission on Radiation Units and Measurements (ICRU) report 62, as well as Stroom's and van Herk's formulae. Results: Average magnitude of the translational errors was reported between 0.7 and 10 mm. The systematic and random errors for head and neck cancer patients were 3.55 (2.58-4.52) and 1.83 (1.56-2.10) mm, respectively. According to the ICRU report 62, as well as Stroom's and van Herk's formulas, the required margins to cover the target were obtained within the ranges of 3.1-4.9, 6.4-10.5, and 7.7-12.7 mm, respectively. Conclusion: According to the results of the present study, 6.5-10.5 mm extension in CTV to PTV margin can ensure that 90% of the head and neck cancer patients will receive a minimum .cumulative CTV dose higher than or equal to 95% of the prescribed dose

کلمات کلیدی:

Image Guided, systematic errors, random errors, Cancer of head and neck, CTV To PTV Margin

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1032381>



