

ABSTRACT

A dosimetry audit is an independent verification process of radiation dose measurements used in radiotherapy practice. A dosimetry audit is conducted to ensure that the dose delivered to the patient matches the planned dose in the TPS. In this study, a point dosimetry audit was conducted using an ion chamber. The point dosimetry audit was conducted on a Linac 6 MV. Measurements were made using three samples. The samples planned to use a CT-Simulator to obtain 3D DICOM images. Planning was carried out using the Eclipse TPS. The samples were given a prescribed dose of 200 cGy normalized to the isocenter as the measurement point. The irradiation was carried out using a perpendicular technique at a gantry angle of 0° in a large field. The actual dose delivered by the Linac was measured using a Farmer ion chamber detector with a size of 0.6 cm³ and a Semiflex detector with a size of 0.125 cm³. The results showed that the deviation between the measured dose and the calculated dose in the TPS on each detector was below the tolerance limit, which was ±3%. The dose measured using the Farmer ion chamber was higher than that of the Semiflex, due to the volume averaging effect on the detector. The point dosimetry audit on the Linac 6 MV was deemed successful, delivering the planned dose and safe for use in radiotherapy.

Keywords: *Point dosimetry audit, TPS, absolute dosimetry, ion chamber, volume averaging.*