

ABSTRACT

Dose verification is necessary to ensure the appropriateness of radiotherapy planning.. This research was carried out to verify the suitability of the dose measured using the ionization chamber detector with the planned dose at the Treatment Planning System (TPS). Radiation dose measurements were carried out using Farmer and CC13 detectors on a slab Phantom which had been adjusted to the patient's planning. The results showed that there was a difference in dose between measurements using the detector and TPS calculations. The dose deviation between the detector and the TPS in each patient A, B, C, D, and E was 1.44%, 2.50%, 2.71%, 1.96%, and 2.54% for the Farmer detector, respectively. and 1.32%, 0.82%, 1.64%, 1.71%, and 0.5% for the CC13 detector. The deviation results on the Farmer and CC13 detectors are still within the tolerance limits according to the AAPM TG-119 protocol, namely $\pm 3\%$. The CC13 detector has a smaller deviation than the Farmer detector for each patient because the CC13 detector has a smaller active volume so it is more accurate for point dose measurements. The difference in the results of dose measurements on the detector and TPS is not statistically significant, explaining that the Farmer and CC13 detectors can be used to verify point doses in cases of breast cancer hypofractionation modulated by the Intensity-Modulated Radiation Therapy (IMRT) technique.

Keywords: *Dose verification, breast cancer, Farmer detector, CC13 detector, TPS, Slab Phantom, deviation detector, TG-119*