Conference Abstract

Evaluating doses calculated using TRS 398 and TRS 277 protocols

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Abstract

Protocols, considered as guidelines in Medical Physics, admit the safety measures and effective practices in diagnostic and therapeutic radiology. The changes of the beam calibration due to adaption of the TRS-398 protocol based on standards of absorbed dose to the water and TRS-277 protocol based on air kerma standards were compared at Tellipalai Cancer Unit.

This research was carried out to compare the TRS-398 and TRS-277 protocols used to calculate the dose measurements in high energy X-ray. Using reading of FC65-G ion chamber and influencing factors of the TRS-398 and TRS-277 protocols, estimated doses for depths 5 cm and 10 cm were 0.9917 and 1.0045, and 1.0046 and 0.9926, respectively. Similarly, for CC13 ion chamber and influencing factors of the TRS-398 and TRS-277 protocols estimated doses for depths 5 cm and 10 cm were 0.9946, 1.0060 and 1.0077 and 0.9820, respectively. Calculations revealed that for the FC65-G chamber, deviation percentage of the doses for the depths 5 cm and 10 cm were 0.2% and 1.2% for the TRS-398 and TRS-277 protocols, respectively, and for the CC13 chamber, the deviation percentages for the depths were 1.19% and 2.4%, respectively. Even the deviations of the readings obtained by the protocols were too small, but the reading estimated using the TRS-398 is the best as it is based on absorbed dose to water and 90% of the human body weight consist of water [1].

Keywords: TRS-398 and TRS-277 protocols, Absorbed dose, Air kerma

Reference

Absorbed Dose Determination in External Beam Radiotherapy: An International Code of Practice for Dosimetry based on Standards of Absorbed Dose to Water Technical Report Series no TRS 398. Vienna : IAEA, 2006.