

ABSTRACT

Gamma camera SPECT/CT is a crucial modality in nuclear medicine that necessitates quality control to ensure patient safety and optimal image quality. One of the important parameters is detector head shielding leakage, which describes the ability of the detector shielding to prevent radiation penetration from outside the field of view. This study aimed to evaluate the detector head shielding leakage value of a gamma camera SPECT/CT based on NEMA standards. Measurements were performed using a Tc-99m radioisotope source with an activity of 200 μ Ci. Data acquisition was carried out at 12 locations on each detector using a LEHRS collimator, with the source positioned outside the field of view. The data were measured in counts and compared with the NEMA acceptance criteria. The measurement results showed a relatively homogeneous count distribution and remained below the NEMA tolerance limit, with coefficient of variation (CV) values of 1,16% for Detector 1 and 1,79% for Detector 2. Detector 1 demonstrated better stability than Detector 2 based on the CV value. These findings indicate that the gamma camera shielding system is still in good condition and suitable for clinical examinations.

Keywords : *detector head shielding leakage, gamma camera, SPECT/CT, NEMA, quality control*