

## ***ABSTRACT***

*SPECT/CT as an anatomical and physiological imaging modality in nuclear medicine requires periodic quality testing to ensure optimal performance. One of them is the Center of Rotation (COR) test in H-detector mode and L-detector mode, which refers to the configuration of the SPECT detector position. Therefore, this study aims to determine the effect of COR changes on the test results of the L-detector COR mode and the clinical impact of COR changes in the L-detector mode. This study collected COR test result data from March 2022 to February 2025 at a hospital in Indonesia. The test result patterns, COR test result image quality, factors influencing the results, improvement solutions, and clinical impacts were analyzed in this study. The analysis was carried out qualitatively and based on relevant literature studies. The COR test result pattern in this study found fluctuations in the COR shift value on the x-axis and y-axis in each detector. The value at some COR test results was outside the manufacturing and IAEA pass limits. This shift can cause artifacts in the reconstructed image such as ring artifacts, and ultimately affect clinical accuracy such as multiple shadows and asymmetric structures. The COR test results are affected by mechanical pressure and vibration factors, gravity effects, misalignment of positions between detectors, and correction errors or reconstruction algorithms. Technical solutions can be applied through correction algorithms or calibration processes by technicians.*

*Keywords: Ring artifact, COR, Quality Assurance, and Detector-L mode.*