ID 221

Assessing Occupational Radiation Exposure for PET/CT Technologists: A Study of Finger Radiation Dose at a Selected Hospital

SP Gamage[1], V Ramanathan[1#] and R Tudugala[1]

[1]Faculty of Allied Health Science, General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka

[#]vijitha.r@kdu.ac.lk

Abstract

In nuclear medicine, radiation exposure to the fingers is a matter of concern for radiation workers since they perform the preparation, dispensing and administration of radiopharmaceuticals. Therefore, this study aims to assess the finger radiation dose received by the technologist who is dealing with dispensing and the administration of 18F-Fluorodeoxyglucose (FDG) in Positron Emission Tomography (PET)/ Computed Tomography (CT) imaging procedures in a PET/CT centre at Asiri Surgical Hospital, Colombo, Sri Lanka. The finger radiation dose received by the technologist was measured by the ED3 active real-time extremity dosimeter over a period of 2 months from November 2022 to December 2022. During this data collection period, a total of 50 PET/CT procedures were performed by the technologist. The ED3 detector was mounted with a single finger coat onto the base of the ring finger of the right hand of the technologist. The dosimetry reading for each procedure was accumulated. The estimated mean value of finger dose from preparation and administration of radiotracers were 78.54 μSv and 177.63 μSv respectively. The annual dose was estimated from the total number of PET/CT procedures performed in 2022. The annual estimated finger dose for the technologist is 180.09 mSv, which was found to be within the International Commission on Radiological Protection (ICRP) recommended value of 500 mSv. This study revealed that the finger dose during FDG Injection was significantly higher than the finger dose found during FDG preparation. Nevertheless, when they increase the number of PET/CT procedures is relatively high, there is a higher possibility to reach the dose limit.

Keywords: *Finger dose, Positron emission tomography/Computed tomography, Extremity dosimeter, Occupational radiation dose*