

Assessment of Nuclear Medicine Radiation Protection Practices Among Radiographers and Nurses at a Small Nuclear Medicine Department in a Tertiary Hospital

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Abstract : BACKGROUND AND OBJECTIVES: Radiopharmaceuticals are used for diagnosis, treatment, staging and follow up of various diseases. However, there is concern that the ionizing radiation (gamma rays, α and β particles) emitted by radiopharmaceuticals may result in exposure of radiographers and nurses with limited knowledge of the principles of radiation protection and safety, raising the risk of cancer induction. This study aimed at investigation radiation safety awareness levels among radiographers and nurses at a small tertiary hospital in South Africa. METHODS: An analytical cross-sectional study. A validated two-part questionnaire was implemented to consenting radiographers and nurses working in a Nuclear Medicine Department. Part 1 gathered demographic information (age, gender, work experience, attendance to/or passing ionizing radiation protection courses). Part 2 covered questions related to knowledge and awareness of radiation protection principles. RESULTS: Six radiographers and five nurses participated (27% males and 73% females). The mean age was 45 years (age range 20-60 years). The study revealed that neither professional development courses nor radiation protection courses are offered at the Nuclear Medicine Department understudy. However, 6/6 (100%) radiographers exhibited a high level of awareness of radiation safety principles on handling and working with radiopharmaceuticals which correlated to their years of experience. As for nurses, 4/5 (80%) showed limited knowledge and awareness of radiation protection principles irrespective of the number of years in the profession. CONCLUSION: Despite their major role of caring for patients undergoing diagnostic and therapeutic treatments, the nurses showed limited knowledge of ionizing radiation and associated side effects. This was not surprising since they never received any formal basic radiation safety course. These findings were not unique to this Centre. A study conducted in a Kuwaiti Radiology Department also established that the vast majority of nurses did not understand the risks of working with ionizing radiation. Similarly, nurses in an Australian hospital exhibited knowledge limitations. However, nursing managers did provide the necessary radiation safety training when requested. In Guatemala and Saudi Arabia, where there was shortage of professional radiographers, nurses underwent radiography training, a course that equipped them with basic radiation safety principles. The radiographers in the Centre understudy unlike others in various parts of the world demonstrated substantial knowledge and awareness on radiation protection. Radiations safety courses attended when an opportunity arose played a critical role in their awareness. The knowledge and awareness levels of these radiographers were comparable to their counterparts in Sudan. However, it was much more above that of their counterparts in Jordan, Nigeria, Nepal and Iran who were found to have limited awareness and inadequate knowledge on radiation dose. Formal radiation safety and awareness courses and workshops can play a crucial role in raising the awareness of nurses and radiographers on radiation safety for their personal benefit and that of their patients.

Keywords : radiation safety, radiation awareness, training, nuclear medicine

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