

Radioactive contamination on apparels of patient undergoing radionuclide scans: a study of burden, causes and its impact

Muhammad Faheem Shahzad, Muhammad Ilyas, Shazia Fatima

Atomic Energy Cancer Hospital, AECH-NORI, Islamabad

OBJECTIVES

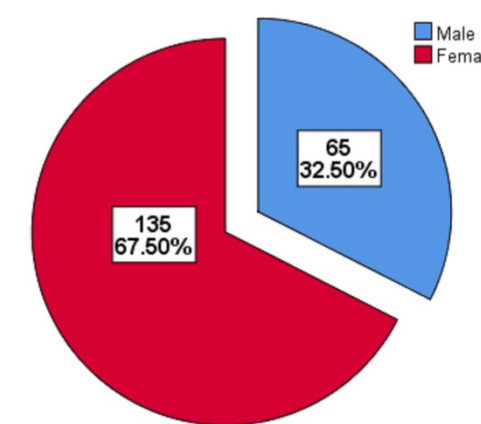
To determine the frequency, causes and impact of radioactive contamination on apparel of patients undergoing radionuclide scanning

METHODS

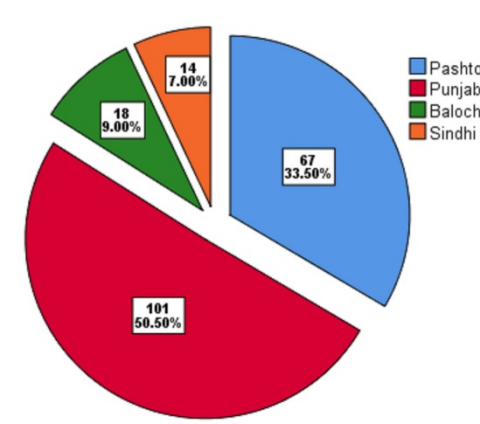
This cross-sectional study was conducted at AECH-NORI during. A total of two hundred consecutive patients, who visited the nuclear medicine department for the Tc-99m-MDP whole body scan were studied. Patients with urine inconsistency, unconscious and those who were bed ridden were excluded from the study. Radioactive contamination on apparels was suspected when there is an intense focal spot or spread of urine or blood seen over the body. Contamination was ruled out by removing the contaminated clothes. Question regarding causes of contamination was asked from the patient or their caregivers and recorded.

RESULTS

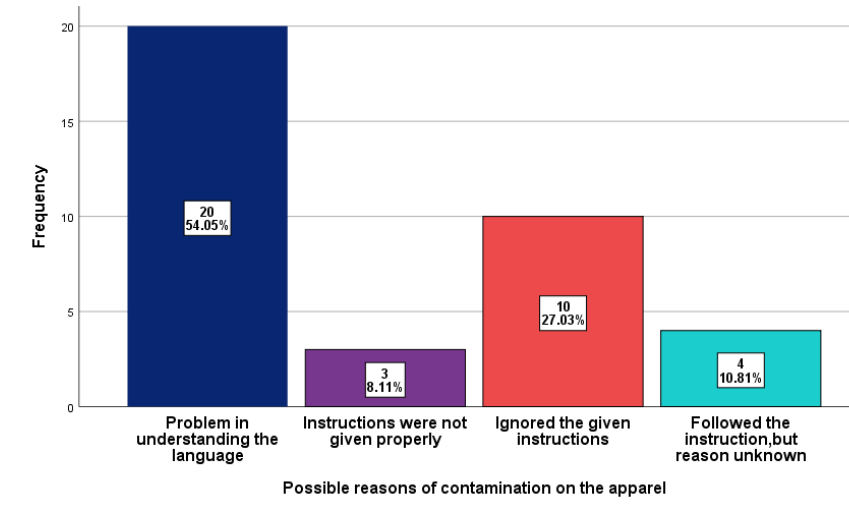
In our study, there was female predominance. Mean age of total study sample found to be 60.66±11.52 years. Radioactive contamination on apparel was noticed in 18.5% (n=37/200) patients, of which 59.46% (n=22) were female. Area around the pelvis and femur was contaminated in 78.38% of total contaminated patients followed by lower legs and chest. We investigated that most of patients with apparel contamination were belonged to Pashtoon ethnic followed by Punjabi, Sindhi and Balochi. Poor understanding of the given instructions was the main reason behind. Urine was the main source of contamination followed by blood. We further ruled out that scan time was double in these patients causing unnecessary work load. Repeat scanning was also observed in few cases.



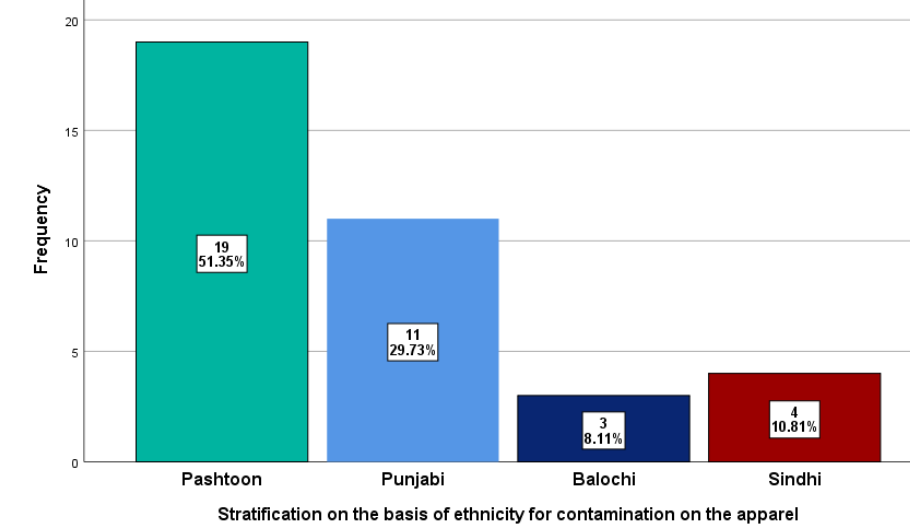
Gender distribution in the total study sample



Distribution of study population in different ethnicities



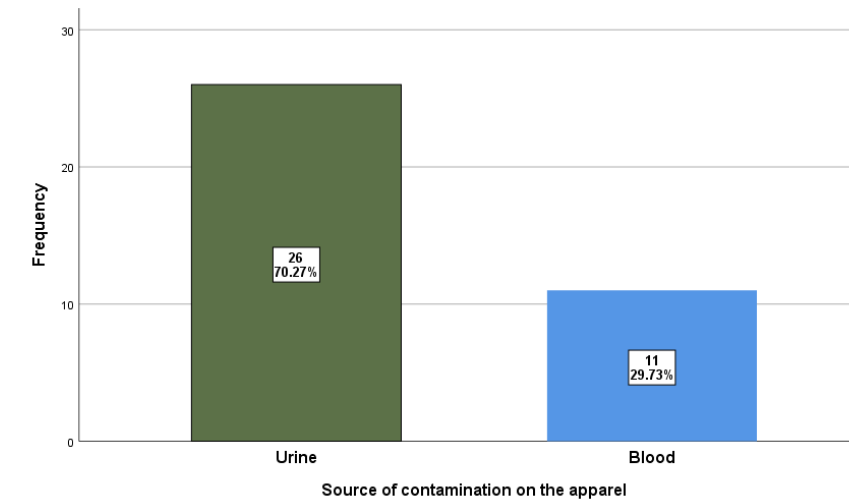
Possible reasons of contamination on the apparel



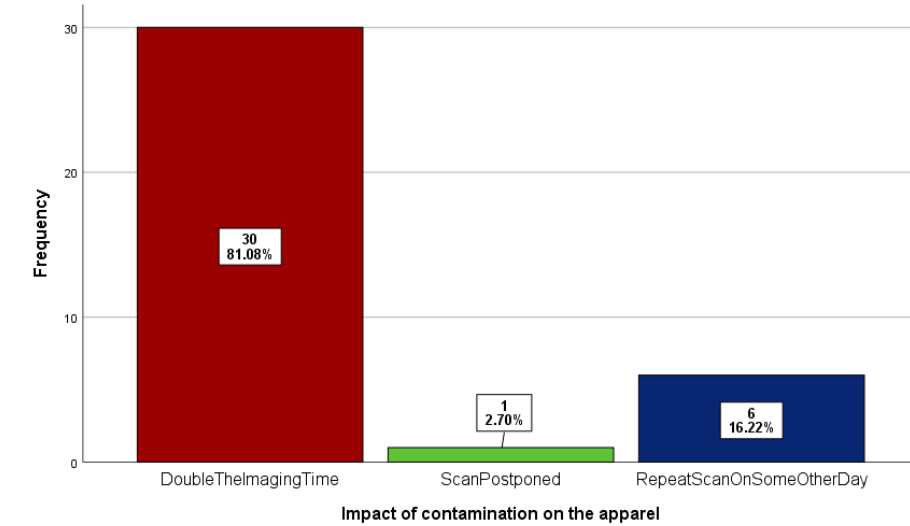
Stratification on the basis of ethnicity for contamination on the apparel



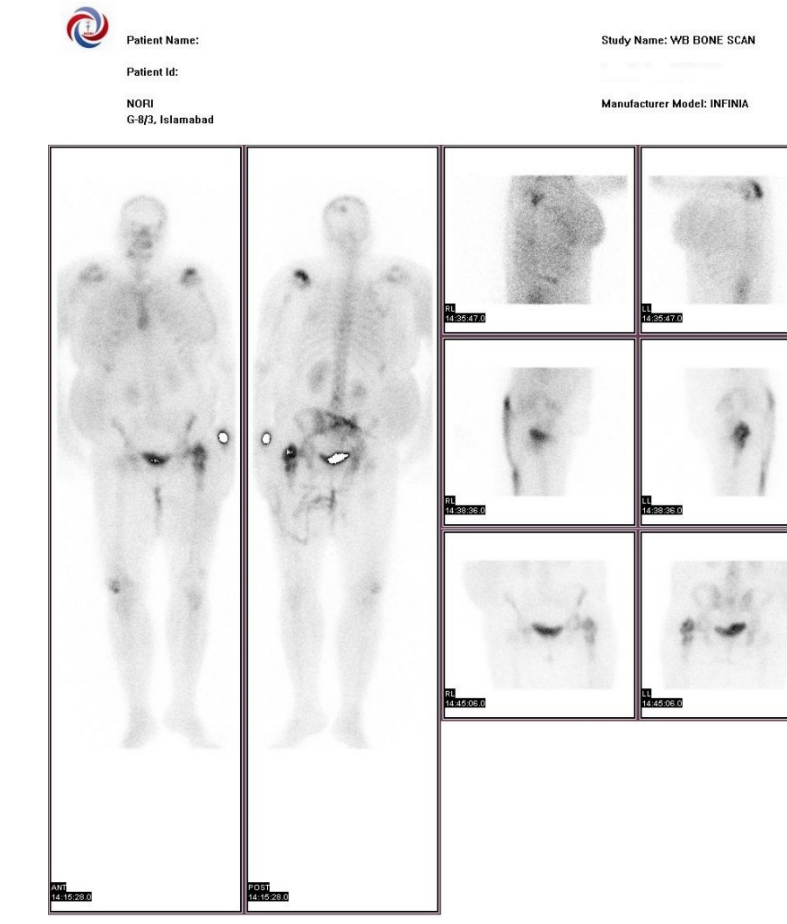
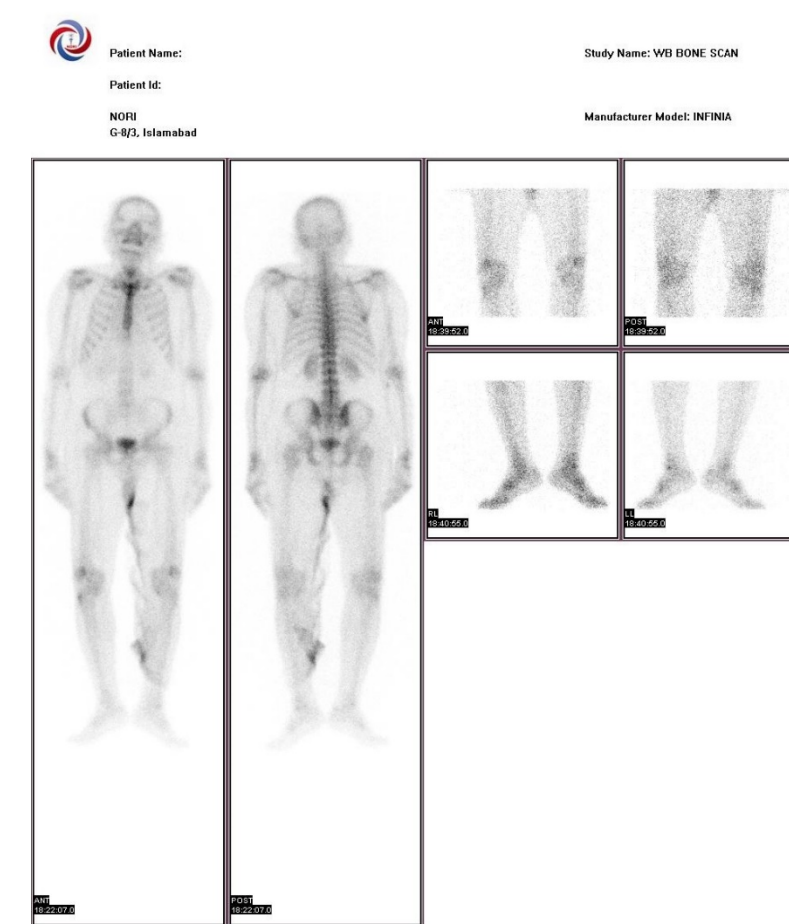
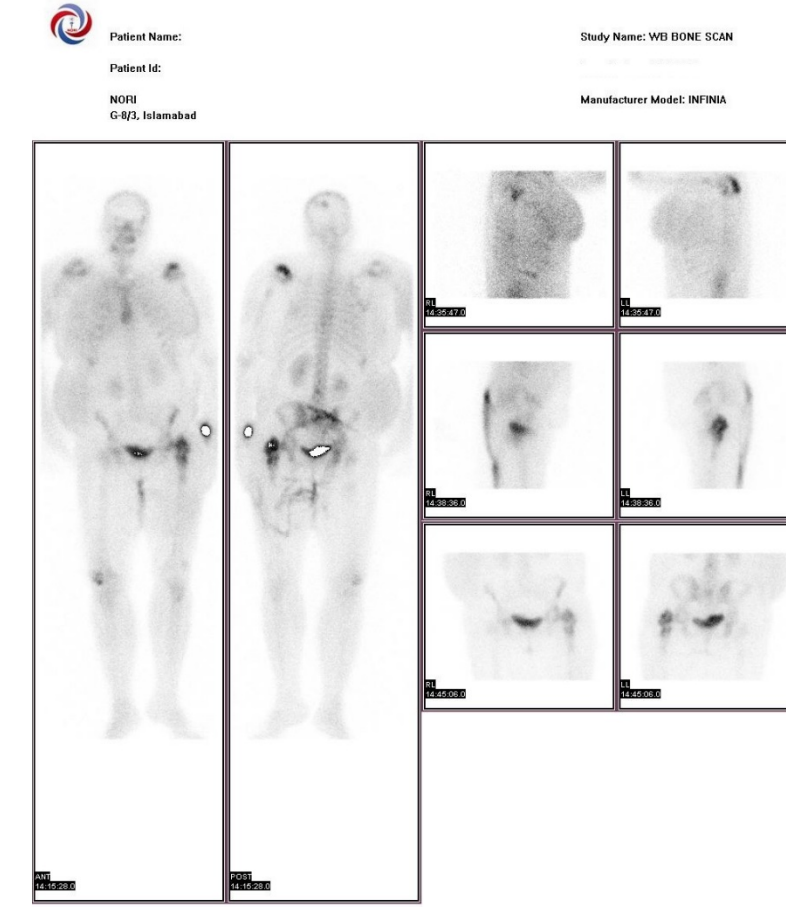
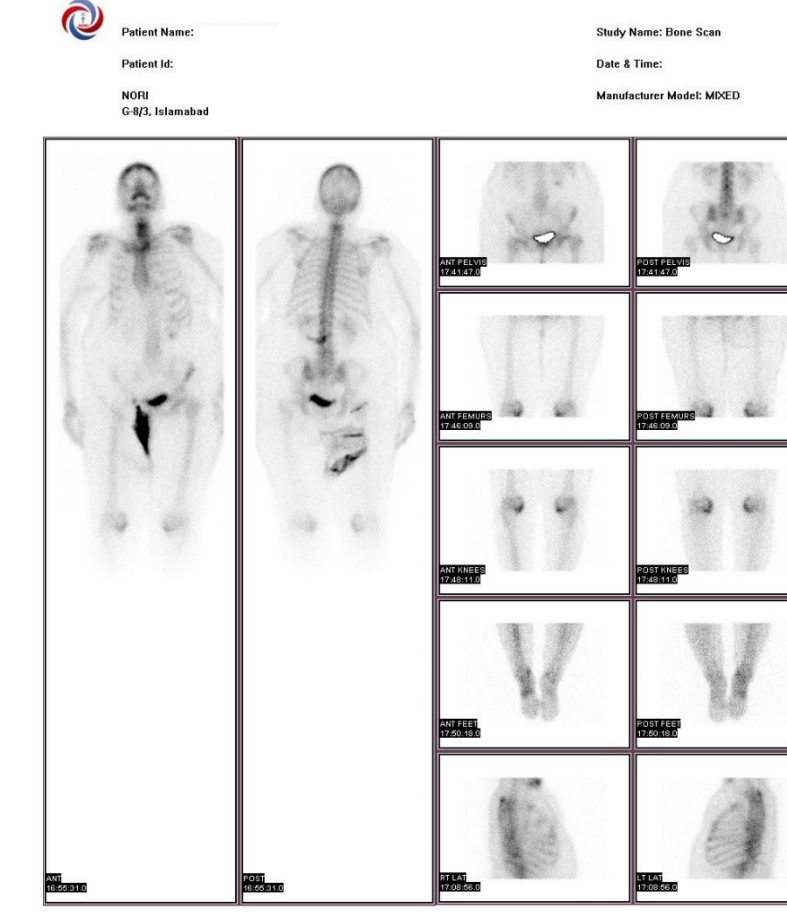
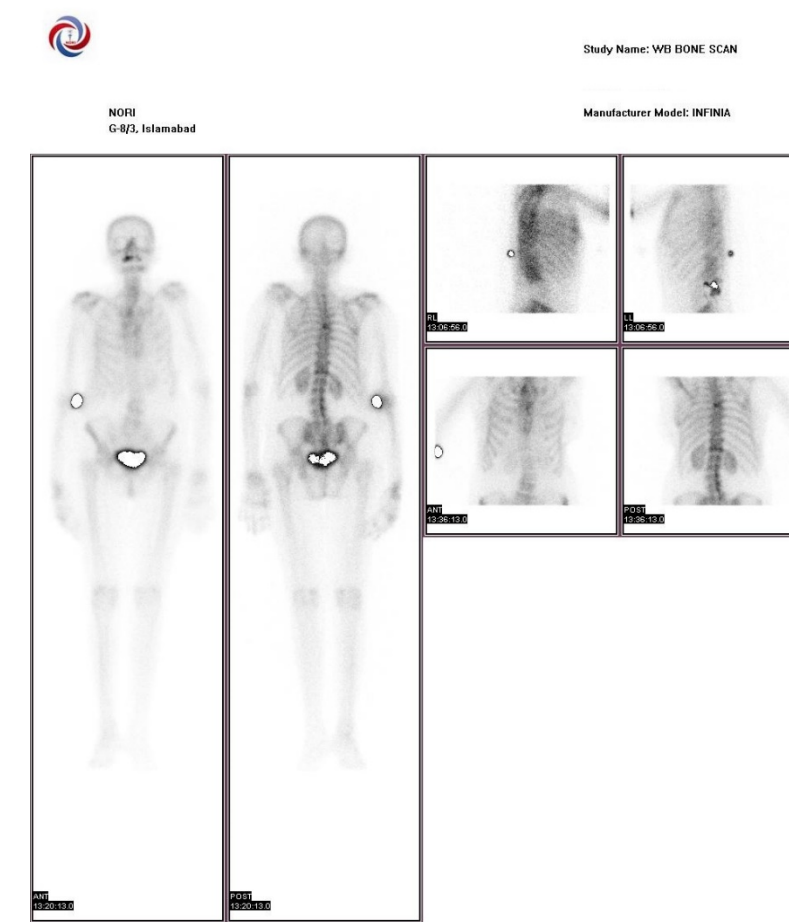
Gender based stratification for contamination on the apparel in study sample



Source of contamination on the apparel



Impact of contamination on the apparel



CONCLUSION AND SUGGESTIONS

A respectable proportion of our local population undergoing radionuclide scanning, was involved in the radioactive contamination of the apparels. Most of the workers are Urdu or Punjabi speaking in our setting, so there is a language issue in understanding the proper post injection instructions, especially among the pashtoon ethnic. Contamination on the clothes found to be one of the most common reason for unnecessary delay in scanning procedure as well as repetition of scans. It is suggested that special gown should be provided from the laboratory to every patient before scanning. IV line of every patient must be maintained before injecting the radiopharmaceutical to avoid extravasation and blood leak from injection site. Video documentaries would be made and played on the LCDs installed at patient waiting area that practically demonstrate the instructions following radioactive injections in all the possible local languages.