ESTIMATION OF RADIONUCLIDE ACTIVITY OF BLADDER FOR PATIENTS UNDERGOING BONE SCAN

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Among variety of medical imaging modalities, nuclear imaging method is a safe, has less side effects and is a painless technique to image the body and diagnose diseases. The objective of this study was to determine the amount of radionuclide activity in bladder during bone scan and to estimate the percentage of radionuclide activity in the bladder compared to injected dose. Results of the study were used to find out the correlation between Body Mass Index (BMI) and amount of activity in bladder and the correlation between gender and radionuclide activity in bladder in the bone scan. A cross-sectional study was conducted among patients referred to Tc99m Methylene Di-Phosphanate (MDP) whole-body bone scans to estimate the radionuclide activity in bladder by using dual head Single Positron Emission Computed Tomography (SPECT) machine. One hundred (100) patients were selected for study. After two hours of injection of Tc99mMDP, scan was performed. The total counts were taken by drawing region of interest (ROI) around the bladder in each image. Conjugate view method was used to convert count into activity. The mean value of bladder activity fraction was 0.075% (ranged from 0.39% to 0.012%) with Standard Deviation (SD) of 0.076. According to the Kruskal Wallis test, there was no correlation between BMI and bladder activity with $P = 0.923$ ($P > 0.05$) and according to the Mann-Whitney test, there was a correlation between gender and bladder activity with $P = 0.002$ ($P < 0.05$). Bladder receives very less amount than 0.5% of activity as a non-imaging organ during bone scan and the estimation of bladder activity is worth because the patients can be encouraged to be well-hydrated after injection to eliminate radiopharmaceuticals from body.

Keywords: Body Mass Index, Single Positron Emission Computed Tomography, Methylene Di-Phosphanate