Quantitative assessment of truncal FDG-PET examination with postinjection transmission scan —Comparison with preinjection transmission scan—

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The purpose of this study was to assess the quantitative accuracy of truncal FDG PET with a postinjection transmission scan. **Methods:** Ten subjects with lung cancer were recruited for this study. Prior to the emission scan, a transmission scan was performed for 10 min. All subjects received 370 MBq of intravenous administration of FDG prior to a 60-min emission scan. Immediately following the emission scan, a postinjection transmission scan was performed. Emission data from 40 to 60 min postinjection were reconstructed with either pre- or postinjection transmission data and converted to a standardized uptake value (SUV) image. On each SUV image, 5 regions of interest were placed and regions of interest on the SUV image with a postinjection transmission scan (SUVpost) were plotted against those with preinjection transmission (SUVpre), and a regression line was generated. Using the slope and Y-intercept of the regression line, percent error of estimation of the SUV was calculated based on the following equation: % error = |SUVpre − SUVpost| × 100/SUVpre. **Results:** In the low SUV area (SUV = 1), the averaged percent error was $9.4 \pm 12.0\%$ (mean ± SD), whereas in the high SUV area (SUV = 10), the averaged percent error was $2.8 \pm 3.1\%$. The least percent error was $1.8 \pm 1.8\%$ (SUV = 3.8) in this study. **Conclusion:** In the study on truncal FDG PET with postinjection transmisson scan, the quantitative accuracy was preserved and the method is clinically available.

Key words: FDG-PET, postinjection transmission scan, misregistration