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EVALUATION OF VARIOUS COLLIMATORS IN TERMS OF IMAGE QUALITY USING (p,2n) ^{123}I AND (p,5n) ^{123}I NUCLIDES. J.Sato,S.Daibo,T. Takahara,H.Suzuki,Y.Tajima, and T.Dokiya. Center for Nuclear Medicine, National Tokyo Daini Hospital.

Purpose: There are two types of ^{123}I , one produced by (p,2n) reaction (hereinafter called 2n) and the other by (p,5n) reaction (hereinafter called 5n). The Planar images and SPECT images obtained by these two types were compared for FWHM and FWTM, together with comparison of the image quality, by means of various collimators.

Methods: The apparatuses used were Gamma View T, a data-processing system RP-100, two collimators for moderate energy, two collimators for low energy, and phantoms for Planar and SPECT. SPECT data were collected for 30 seconds per step at 64×64 matrix at 64 steps.

Results: The Planar image obtained by a low energy high resolution (LEHR) collimator and the 5n-derived ^{123}I showed 7.9 mm of FWHM and 14.3 mm of FWTM. The image obtained by the LEHR collimator and the 2n-derived ^{123}I showed 11.2 mm of FWHM. FWTM could not be determined. The SPECT image obtained by the LEHR collimator and the 5n-derived ^{123}I showed 17.6 mm of FWHM and 28.6 mm of FWTM (4.5 cm distant from the center of a phantom 20 cm in diameter). The image obtained by the collimator and the 2n-derived ^{123}I showed 19.5 mm of FWHM and 34.1 mm of FWTM, providing the best image quality.
