

## Summary

### Comparison of Scatter and Attenuation Correction Methods in Single Photon Emission CT —Simulation Study—

Koichi OGAWA<sup>1\*</sup>, Tokinari ONO<sup>1</sup>, Hiroyuki SHINOHARA<sup>2\*</sup> and Tsunehiko NISHIMURA<sup>3\*\*</sup>

*\*Member of Japanese Society of Nuclear Medicine, SPECT Quantification Working Group*

*\*\*Chairman of Japanese Society of Nuclear Medicine, SPECT Quantification Working Group*

<sup>1</sup>*Department of Electronic Informatics, College of Engineering, Hosei University*

<sup>2</sup>*Department of Radiology, Showa University Fujigaoka Hospital*

<sup>3</sup>*Department of Radiology, Kyoto Prefectural University of Medicine*

Quantitative SPECT requires an accurate and appropriate attenuation correction and scatter correction. This paper compares scatter corrected images combined with attenuation correction. The scatter correction methods used here were the deconvolution method, dual energy window subtraction method, triple energy window method, and dual photopeak window method. The attenuation correction methods used were Sorenson's method, iterative Chang's

method, and Bellini's method. The numerical phantoms used were the cold spot, hot spot, star, and MCAT phantom. These correction methods were assessed by using profiles and images, contrast values, and linearity of SPECT values.

**Key words:** Single photon emission CT, Image processing, Attenuation correction, Scatter correction, Monte Carlo simulation.