

## A new method for crosstalk correction in simultaneous dual-isotope myocardial imaging with Tl-201 and I-123

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We have developed a new method of crosstalk correction in simultaneous dual-isotope imaging with Tl-201 and I-123 by using crosstalk ratios and a blurring filter.

Single isotope myocardial studies (10 for Tl-201 and 7 for I-123) were performed with a dual energy window acquisition mode and two low energy general-purpose collimators. Then two planar images acquired with dual energy windows for a Tl-201 line source and an I-123 line source were obtained to measure line spread functions (LSFs) and crosstalk ratios for each image.

The line source experiments showed that the LSFs for the Tl-201 imaging window from the single Tl-201 source were very similar to those for the I-123 imaging window from the single Tl-201 source, but the LSFs for the Tl-201 imaging window from the single I-123 source had broad shapes which differed from those for the I-123 imaging window from the single I-123.

To obtain accurate I-123 crosstalk images in the Tl-201 imaging window from the I-123 images in the I-123 imaging window, we designed a low-pass blurring filter. In 7 clinical I-123 MIBG studies, I-123 window images processed with this filter became very similar to the Tl-201 window image from the single I-123 source.

The method proposed in this study can accurately correct the crosstalk in dual isotope studies with Tl-201 and I-123 and is easily applicable to conventional gamma camera systems with any dual energy window acquisition mode.

**Key words:** crosstalk correction, dual-isotope myocardial imaging, Tl-201, I-123 MIBG