Summary

A Newly Developed Maneuver, Field Change Conversion (FCC), Improved Evaluation of the Left Ventricular Volume More Accurately on Quantitative Gated SPECT (QGS) Analysis

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[Purpose] To investigate whether a newly developed maneuver that reduces the reconstruction area by a half more accurately evaluates left ventricular (LV) volume on quantitative gated SPECT (QGS) analysis.

[Methods] The subjects were 38 patients who underwent left ventricular angiography (LVG) followed by G-SPECT within 2 weeks. Acquisition was performed with a general purpose collimator and a 64 x 64 matrix. On QGS analysis, the field magnification was 34 cm in original image (Original: ORI), and furthermore it was changed from 34 cm to 17 cm to enlarge the reconstructed image (Field Change Conversion: FCC). End-diastolic volume (EDV) and end-systolic volume (ESV) of the left ventricle were also obtained using LVG.

[Results] EDV was 71 ± 19 ml, 83 ± 20 ml and 98 ± 23 ml for ORI, FCC and LVG, respectively (p < 0.001: ORI versus LVG, p < 0.001: ORI versus FCC, p < 0.001: FCC versus LVG). ESV was 28 ± 12 ml, 34 ± 13 ml and 41 ± 14 ml for ORI, FCC and LVG, respectively (p < 0.001: ORI versus LVG, p < 0.001: ORI versus FCC, p < 0.001: FCC versus LVG).

[Conclusion] FCC was better than ORI for calculating LV volume in clinical cases. Furthermore, FCC is a useful method for accurately measuring the LV volume on QGS analysis.

Key words: QGS, Ventricular volume, Field change conversion, Magnification re-construct.