

Summary

Cardiac Pool Scintigraphy Using the Solid-State Digirad 2020tc Imager™ —Comparison with the Conventional Anger-Type Gamma Camera Using Moving Cardiac Phantom—

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Movable gamma camera, 2020tc Imager™, was light miniaturized using Si photodiode as a semiconductor sensor instead of photomultiplier tubes. To validate performance of this new camera in cardiac pool scintigraphy, multigated equilibrium radionuclide ventriculography using the moving cardiac phantom was performed with 2020tc Imager and a conventional Anger-type gamma camera (PRISM 3000). **[Method]** Both measured cardiac functional values were compared with the set-up ones for the phantom. Five-, 7.5-, and 10-minute-multigated data were acquired using both cameras under constant contractile condition. Constant 5-minute-multigated data acquisitions using 2020tc Imager were also carried out with varied contractile conditions. **[Results]** Meas-

ured ejection fraction (EF) derived from 2020tc Imager and an Anger-type camera were 68.5 ± 0.6 and $70.3 \pm 1.4\%$, respectively. Both of these values were absolutely close to the set-up EF value of 70%. Both of end-diastolic volume and EF showed excellent correlation between set-up and measured values with the correlation coefficient of 0.97 and 0.99, respectively. **[Conclusion]** This new movable camera could provide comparative cardiac functional values with an Anger-type camera and it can be useful to evaluate acute cardiac function in a coronary care unit.

Key words: Solid-state gamma camera, Moving cardiac phantom, Multiple equilibrium radionuclide ventriculography, Coronary care unit.