

Early and delayed Tc-99m-tetrofosmin myocardial SPECT in patients with left bundle branch block

Hiroki SUGIHARA,* Noriyuki KINOSHITA,** Yoshihiko ADACHI,** Yoko TANIGUCHI,**
Katsuchi OHTSUKI,** Akihiro AZUMA,** Haruhiko ADACHI,** Yo USHIJIMA,*
Masao NAKAGAWA** and Tomoho MAEDA*

*Department of Radiology and **Second Department of Medicine, Kyoto Prefectural University of Medicine

To determine the utility of the myocardial tracer Tc-99m-tetrofosmin in the examination of patients with left bundle branch block (LBBB) and to investigate Tc-99m-tetrofosmin uptake and retention in the myocardium, early and delayed Tc-99m-tetrofosmin SPECT was performed in 10 patients having LBBB without coronary stenosis. *Methods:* After 740 MBq of Tc-99m-tetrofosmin injection in the resting state, the early and delayed SPECT imaging was done at 30 min and 180 min, respectively. *Results:* Decreased Tc-99m-tetrofosmin uptake in the septal segments was observed in 4 patients (40%) at 30 min and in 9 (90%) at 180 min. Reverse redistribution was seen in 9 of 10 patients. In patients with LBBB, the septal-to-lateral uptake ratio was lower in the delayed images than in the early images (0.80 ± 0.09 vs. 0.89 ± 0.09 , $p < 0.001$). In patients with LBBB, the washout rate of Tc-99m-tetrofosmin was higher in the septal segments than in the lateral segments ($28.3 \pm 4.3\%$ vs. $22.8 \pm 3.3\%$, $p < 0.001$). *Conclusion:* The SPECT data indicate that in LBBB without coronary stenosis, the uptake of Tc-99m-tetrofosmin is decreased in the septal wall, and that reverse redistribution occurs frequently. Our results contribute to the elucidation of both the cellular biokinetics of Tc-99m-tetrofosmin in the myocardium and the hemodynamics of the septum in LBBB, and indicate the possible clinical utility of Tc-99m-tetrofosmin.

Key words: Tc-99m-tetrofosmin, left bundle branch block, septum, reverse redistribution