

## Summary

### Successive Myocardial Fatty Acid Metabolic Imaging in Patients with Dilated Cardiomyopathy: Usefulness as a Prognostic Indicator

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To evaluate the prognostic value of fatty acid metabolic imaging in patients with idiopathic dilated cardiomyopathy (DCM), we performed myocardial imaging with  $^{123}\text{I}$ -BMIPP (BMIPP).

We studied 23 patients with DCM who were admitted because of congestive heart failure (CHF) and after discharge the stable condition persisted for more than one year. BMIPP imaging was obtained when CHF recovered (first study) and the second study was performed one year after the first study. From BMIPP imaging we calculated %Uptake (percentage of cardiac uptake of isotope to total injected dose) and Defect Score (degree and extent of regional abnormality in BMIPP uptake, DS). In the first study, we performed myocardial imaging with  $^{201}\text{Tl}$  to calculate Uptake Ratio of BMIPP (%Uptake of BMIPP divided by %Uptake of  $^{201}\text{Tl}$ , UR).

During the follow up period of  $18.2 \pm 9.5$  months (4.5–39.6 months) after the second study, cardiac event developed in 8 patients (cardiac death; 4, deterioration of CHF; 4). On univariate analysis, the fol-

lowing indices differed significantly between the event and event-free groups; left ventricular end-systolic dimension, graded DS, UR and %Uptake of  $^{201}\text{Tl}$  at the first study, %Uptake of BMIPP and DS at the second study, difference of %Uptake of BMIPP and DS between the first and second study, and newly designed index from graded DS of the first study and its change in the second study (Defect Index, DI). Cox proportional hazard analysis showed that DI ( $p = 0.0026$ ) and age ( $p = 0.0262$ ) were independent predictors of cardiac events. In patients with DI  $\geq 3$ , the relative risk of cardiac event was 25.0 times greater than that in patients with DI  $\leq 2$ .

These data suggested that the extent and degree of regional abnormality of BMIPP uptake (DS) and its changes with time were useful for evaluating the prognosis in patients with DCM even though a clinically stable condition is persisting.

**Key words:**  $^{123}\text{I}$ -BMIPP imaging, Dilated cardiomyopathy, Prognosis.