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Predicting the effects on patients with dilated cardiomyopathy of β-blocker therapy, by using iodine-123 15-(p-iodophenyl)-3-R,S-methylpentadecanoic acid (BMIPP) myocardial scintigraphy

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We examined whether the iodine-123 15-(p-iodophenyl)-3-R,S-methylpentadecanoic acid (BMIPP) myocardial scintigraphy was useful for predicting the treatment response to β-blocker in patients with dilated cardiomyopathy (DCM).

Sixteen patients with DCM were studied. BMIPP single photon emission computed tomography (SPECT) was performed before β-blocker therapy. The count ratio of the heart (H) to the upper mediastinum (M) (H/M ratio) was calculated. Several measurements including the BMIPP H/M ratio before the administration of metoprorol were retrospectively compared among the 10 "good responders" (showing improvement by at least one NYHA class or an increase in the ejection fraction of $\geqq 0.10$, 6 months after the start of the drug therapy) and the 6 "poor responders." The bull's eye map of BMIPP was divided into 17 areas. Each segmental score was analyzed quantitatively by means of a two-point scoring system (good uptake $\geqq 67\%$, poor uptake $< 67\%$). The total score was regarded as the uptake score.

The H/M ratio was significantly higher in the good responders than in the poor responders (2.41 ± 0.24 vs. 1.86 ± 0.17 $p < 0.01$). There were no significant differences between the two groups in any other variable data at entry.

The uptake score was also a good index for predicting the therapeutic effect. When a relative uptake of 67% or higher was scored as 1, uptake scores of 9 to 17 corresponded to good responses (sensitivity = 100%, specificity = 100%, accuracy = 100%, positive and negative predictive value = 100%).

Although the number of patients studied is small, our results suggest that BMIPP myocardial scintigraphy can predict the response to a β-blocker in patients with DCM.

Key words: dilated cardiomyopathy, β-blocker therapy, iodine-123 15-(p-iodophenyl)-3-R,S-methylpentadecanoic acid (BMIPP)