

Summary

Relation between Wall Motion and Scintigraphic Uptake Altered by the Cut-Off Level on Technetium-99m Sestamibi Tomographic Imaging —The Preferable Cut-Off Levels According to Tomographic Uptake Correlated with the Wall Motion—

Tatsuya KAMADA, Maki ISHIMARU, Yasuhiko KOBAYASHI,
Yoshikazu NAGAI and Chiharu IBUKIYAMA

Second Department of Internal Medicine, Tokyo Medical University

Background. Whether technetium-99m sestamibi imaging can evaluate myocardial viability is still obscure. It may be partially because the preferable cut-off level for evaluation of the viability is not known.

Objectives. This study was aimed to investigate which cut-off level should be used for estimation of the contractile function, and verify whether technetium-99m sestamibi tomographic imaging can evaluate myocardial viability.

Methods. We studied 45 patients who had had myocardial infarction. They underwent technetium-99m sestamibi imaging, echocardiography, and cardiac catheterization. The myocardial image was divided into 16 segments, each of which was scored according to wall motion on echocardiography with a 4-point scale. The segmental technetium-99m uptake was also scored with a 4-point scale. We investigated the correlation between wall motion and scintigraphic uptake with the use of 7 cut off levels (from 35% to 65%, in 5% increments). The correlation ranks were compared among patient groups with a number of

stenotic vessels.

Results. Irrespective of the number of stenotic vessels, the defect score was similarly enlarged according to cut-off levels. The patient groups had the maximum correlation ranks with different cut-off levels, which were 40% for 1-vessel disease ($\rho = 0.512$, $n = 160$, $p = 0.0001$), 50% for 2-vessel disease ($\rho = 0.424$, $n = 208$, $p = 0.0001$), and 60% for 3-vessel disease ($\rho = 0.540$, $n = 272$, $p = 0.0001$). The correlation ranks for all groups were stable, whereas not high, throughout various cut-off levels.

Conclusions. Technetium-99m sestamibi imaging can approximately estimate myocardial viability from the point of view of function, which may be corrected by the careful choice of cut off levels according to the number of the stenotic vessels (40% for 1-vessel disease, 50% for 2-vessel disease, 60% for 3-vessel disease).

Key words: Myocardial infarction, Viability, Perfusion, Cardiac function, Sestamibi.