

Summary

Usefulness of Stress MPI for Assessment of PCI Indication —Comparison with FFRmyo Evaluation Using Pressure Sensor Wire—

Manabu FUJINAWA*, Masahiro ABE**, Shinji OKUBO* and Akira YAMASHINA***

*Department of Cardiology, Tokyo Medical University Kasumigaura Hospital

**Ushiku Aiwa General Hospital

***Second Department of Internal Medicine, Tokyo Medical University

Purpose: To examine the usefulness of percutaneous coronary intervention (PCI) indication assessment using stress myocardial perfusion imaging (St-MPI).

Background: The usefulness of myocardial fractional flow reserve (FFRmyo) using a pressure sensor wire for the assessment of PCI indication has been reported in recent years. However, we have frequently experienced discrepancies between results from FFRmyo and St-MPI. **Subjects and Methods:** Forty-two patients with single-vessel disease with 75–90% (AHA classification) stenosis and chronic ischemic heart disease were enrolled in this study. We measured FFRmyo during coronary angiography (CAG), and determined that it was less than 0.75 in all cases. We separated the cases into groups based on the results of the St-MPI, which was carried out just prior to the CAG: 18 patients showing positive stress test (group P); and 24 patients showing negative stress test (group N). We selected PCI only for the group P. We tracked both groups for 4.4 ± 0.6 years and investigated the existence or non-existence of cardiac events therein. We carried out another St-MPI one year later on the group of cases without cardiac events. **Results:**

Although a fatal cardiac infarction occurred in 1 case in the group P, there were no occurrences of major cardiac events (cardiac death or fatal cardiac infarctions) in the group N. Minor cardiac events (new PCI, target lesion re-vascularization: TLR, coronary artery bypass surgery and heart failure) were detected in 8 cases (44%) in the group P and 3 cases (13%) in the group N, thus being a significantly high percentage in the group P ($p < 0.05$). In group P patients without having restenosis at 1 year after PCI, VO_2 was significantly improved as compared to that before PCI. However, no significant difference in VO_2 before and after follow-up was observed in group N. **Conclusion:** Because the prognosis of patients with single-vessel stable ischemic heart disease is good, it can be inferred that the principal cardiac events therein are minor cardiac events. When we define minor cardiac event as endpoint, St-MPI can be a more beneficial test for the assessment of PCI indication than FFRmyo.

Key words: Cardiac event, Fractional flow reserve, Ischemic heart disease, Percutaneous coronary intervention, Stress myocardial perfusion imaging.