

## Microvascular angina (MVA)

### -Report from Japan-

Hiroaki Shimokawa, MD, PhD

International University of Health and Welfare, Tohoku University

Sex differences exist in a number of diseases, especially in cardiovascular diseases, where there are approximately 100-fold differences in the prevalence between Takayasu arteritis with female preponderance and Brugada syndrome with male preponderance.

Microvascular angina (MVA) is one of the cardiovascular diseases with female preponderance. In the pathogenesis of chronic coronary syndrome (CCS), three mechanisms are involved, including (1) atherosclerotic stenosis of large coronary arteries, (2) coronary spasm of epicardial coronary arteries, and (3) coronary microvascular dysfunction (CMD). The importance of CMD has been emerging especially after the ISCHEMIA Study (2020). In 2012, we established the Coronary Vasomotor Disorders International Study (COVADIS) group and proposed the international criteria of MVA. We also performed an international prospective cohort study on MVA with 14 institutes from 7 countries, in which we were able to enroll 686 patients with MVA. Female/male ratio was 3/2 and age of 60s and 50s accounted 2 thirds of the population. We demonstrated that MVA patients had 7.7% annual event rate of MACE, where unstable angina was the most frequent event. After adjustments, there was no sex or ethnic difference. Based on these findings, ESC made a press release, emphasizing the importance of CMD and MVA. In the molecular mechanisms of CMD, it appears that Rho-kinase activation is involved. In order to obtain further evidence on CMD and MVA, we established the Japanese Association of CMD (J-CMD) in 2022 with 16 major leading universities and hospitals.

(238 words)