Clinical outcomes of patients with diffuse coronary artery disease following physiology-guided treatment strategy: insights from AJIP registry

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On behalf of AJIP registry

Funding Acknowledgement: Type of funding source: None

Background: Physiology-guided treatment strategy improves clinical outcomes of patients with coronary artery disease. However, it has not been fully evaluated whether such guideline-based strategy is useful for patients with diffuse coronary artery disease as well, which is known to be one of the major factors affecting morbidity and mortality.

Purpose: The aim of this study was to clarify clinical outcomes of patients with diffuse coronary artery disease whose treatment strategy was based on coronary physiology.

Methods: From an international multicentre registry of iFR-pullback, consecutive 1067 patients (1185 vessels) with stable angina were included in whom coronary lesions were deferred or revascularized according to the iFR cutoff: 0.89. The physiological pattern of disease was classified according to the iFR-pullback recording as predominantly physiologically diffuse (n=463) or predominantly physiologically focal (n=722). Major adverse cardiovascular events (MACEs), defined as a composite of cardiac death, non-fatal myocardial infarction, and ischemia-driven target lesion revascularization during follow-up period, were compared between diffuse and focal groups, in both deferred and revascularized groups, respectively.

Results: Mean age was 67.1±10.7 years and 75.8% of patients were men. Median iFR was 0.88 (interquartile range: 0.80 to 0.92). At a median follow-up period of 18 months, no significant differences in MACEs were found between diffuse and focal groups, in both iFR-based deferred and revascularized groups. In the deferred group (n=480), MACEs occurred in 6.9% patients (15/217) in the diffuse group and 8.0% patients (21/263) in the focal group (p=0.44). In the revascularized group (n=705), MACEs occurred in 8.9% patients (22/246) in the diffuse group and 7.2% patients (33/459) in the focal group (p=0.49).

Conclusions: Despite potentially higher risks in patients with diffuse coronary artery disease, clinical outcomes of those patients were comparable to those of patients without diffuse disease, as long as treatment strategy was based on the physiology guidance, which is globally recommended by international guidelines.