Early Prognostic Value of Microvascular Obstruction in Acute Coronary Syndrome by Using Cardiac Magnetic Resonance Imaging

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**Background:** Microvascular obstruction (MVO) assessed by cardiovascular magnetic resonance imaging is a prognostic value associated with major adverse cardiac events (MACE) in acute coronary syndromes (ACS). There is a lack of studies about microvascular obstruction and major adverse cardiac events at onset of acute coronary syndromes and short term follow-up (30 days) in Phramongkutklao Hospital.

**Objective:** To compare prognostic value in microvascular obstruction with no microvascular obstruction in acute coronary syndromes patients.

**Methods:** Acute coronary syndromes patients reperfused by percutaneous coronary intervention in Phramongkutklao Hospital (n=34) underwent cardiac magnetic resonance imaging. Microvascular obstruction was determined on dynamic Gadolinium perfusion images. Furthermore, ejection fraction (EF%) and total infarct size was determined with CMR. MACE was conducted at onset of ACS and short term follow-up in 30 days. The primary endpoint was defined as a composition of death, myocardial re-infarction, stroke, recurrence of ischemic symptoms, cardiac arrhythmia, congestive heart failure, and re-admission

**Results:** A total of 34 patients with acute coronary syndrome underwent cardiac magnetic resonance imaging. 19 patients had microvascular obstruction (55%). The primary endpoint (MACE) in patients with MVO at 30-day follow up after ACS was more likely to occur in patients without MVO, but not significant. The patients with MVO had more recurrent symptoms (88% vs 33%, p=0.000). The presence of MVO was associated with larger infarct size (17.8 g vs 6.6 g, p=0.00) and lower EF (55.3% vs 66.1%, p= 0.005).

**Conclusion:** There is a major adverse cardiac event in patients with MVO at 30 days after ACS, but not significant. Further follow up should be continued.

**Keywords:** Microvascular obstruction, Cardiac magnetic resonance imaging, Major adverse cardiac event