EARLY CARDIOVASCULAR MRI POST SUCCESSFUL REPERFUSION OF ACUTE MYOCARDIAL INFARCTION: AN EXPLORATORY STUDY

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ABSTRACT

Post-myocardial infarction (MI) patients has varied outcome despite successful reperfusion. Our study aimed to use cardiac magnetic resonance imaging (CMR) to explore parameters that may influence outcome in successfully reperfused post-MI patients. We used left ventricular (LV) remodelling and major adverse cardiovascular event (MACE) at 6 months as a poor-outcome indicator. Consecutive patients admitted to Sarawak Heart Centre from Dec 2012 to Nov 2014 with acute anterior or inferior ST elevation MI were screened. A total of 101 patients with TIMI-3 flow were recruited. Patients underwent CMR imaging during the index admission, and another between 3 to 6 months later. LV remodelling occurred in 21.8% while microvascular obstruction (MVO) in 38.6% of patients. LV infarct size and MVO were significant in those who developed LV remodelling, while door-to-perfusion time and total-ischaemic time were not significantly different. MACE was significant in patients with larger infarcts but not significant in patients with MVO. LV infarct size was also significant in those who had reverse LV remodelling. These results suggest that early CMR measurement of infarct size and detection of MVO has the potential to predict LV improvement or deterioration at 6 months.

Key words: Cardiac mri, early post myocardial imaging, left ventricular remodelling, microvascular obstruction, post-acute myocardial infarction

INTRODUCTION

Acute myocardial infarction has variable impact on outcome and long-term survival of patients. With the advent of thrombolytics, early percutaneous coronary intervention, and modern medicine, the mortality and morbidity is slowly decreasing especially in the acute event (Smolina *et al*., 2012; Puymirat *et al*., 2015). Unfortunately, in Malaysia and probably in other developing countries, easy availability of specialised coronary care facilities and interventional coronary laboratories may not be immediately available.

In acute ST elevation myocardial infarction (STEMI) care in our region, patients are treated by thrombolysis in regional hospitals and transferred to our centre, which is the only public hospital with invasive catheterisation laboratory in the state, within 72 hours after the index event. After coronary angiogram, the patients are discharged back to regional hospitals for continuation of care. Thus, it is imperative that we risk-stratify patients to maximize the use of limited resources available. There is a need to identify which patient benefits the most from pharmacological intensification, coronary revascularisation, and automated implantable cardiac-defibrillator (AICD) implantation (Alderman *et al*., 1983; Pfeffer *et al*., 1992; Moss *et al*., 2002). Currently our centre's outpatient clinic is congested with follow up appointments for patients ranging from 4 to 6 monthly. This poses a huge hindrance for rapid titration of treatment for high-risk patient. With proper risk-stratification, low-risk patients can be discharged and follow up at their primary physicians in the regional hospitals. This would reduce the number of patients for follow up in the

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