

中文題目：探討於急性心肌梗塞介入治療時使用複合式血栓抽吸策略對短期影像學與長期臨床預後的影響

英文題目：Impact of combination thrombectomy strategy during primary percutaneous coronary intervention for acute myocardial infarction on short-term imaging results and long-term clinical outcomes

作者：楊柏威¹，宋沛勳^{2,3,4}

服務單位：¹高雄長庚醫院內科部，²高雄長庚醫院心臟內科，³高雄長庚生物轉譯醫學中心，⁴高雄長庚震波科研中心

Background: Growing evidences have shown that routine thrombosuction during primary percutaneous coronary intervention (PPCI) for culprit vessel lacks clinical benefits in acute ST-segment elevation myocardial infarction (STEMI). However, whether combination of distal protection (DP) or glycoprotein IIb/IIIa inhibitor (GPI) with routine aspiration thrombectomy (Tb) in STEMI could further improve angiographic results and left ventricular (LV) function remains unanswered.

Objectives: We intended to study the impact of combination thrombectomy strategies on clinical outcomes in the STEMI patients presenting with high thrombus-burden lesions.

Methods: This was a prospective single-center trial conducted from February 2014 to August 2017. A total of 214 patients with acute STEMI undergoing PPCI were consecutively enrolled. The DP/GPI/Tb group (n=72) was defined as the STEMI patients who received combination strategy for high thrombus burden (defined as TIMI thrombus grade 4 or 5) during PPCI. The Tb-only group (n=142) was defined as those undergoing routine aspiration thrombectomy only. Guideline-directed medical therapy including antithrombotic and cardioprotective agents was similarly administered to both groups. All study subjects received angiographic, electrocardiographic and echocardiographic assessment during hospitalization. The 9-month echocardiographic study and 1-year clinical outcomes were also evaluated. Additionally, the levels of serum irisin, a recently identified myokine regulating mitochondrial function, were checked at the start of PPCI and 1 month after discharge.

Results: At the beginning of PPCI, the DP/GPI/Tb group had significantly higher pre-PCI lesion stenosis (97.4% vs 92.9%, p=0.045) but lower TIMI flow (0.43 vs 0.75, p=0.023) and irisin level (246.7 vs 445.3 pg/mL, p=0.040) compared with Tb-only group. Both groups achieved similar final TIMI-3 epicardial coronary flow after PCI. Additionally, the TIMI myocardial perfusion grade (2.64 vs 2.42, p=0.027) and 90-min ST resolution rate (68.5% vs 57.5%, p=0.012) were significantly higher in the DP/GPI/Tb than the Tb-only group. Concordantly, the patients receiving combination strategy had better 3D LV ejection fraction (55.7% vs 52.7%, p=0.027) and 2D global longitudinal strain (-14.5% vs -13.1%, p=0.035) on the in-hospital echocardiography. However, follow-up 1-month irisin level, 9-month echocardiographic results, and 1-year clinical outcomes including cardiovascular death, MI, stroke and rehospitalization for heart failure did not differ between groups.

Conclusions: In terms of high thrombus burden in the culprit lesion of STEMI, combination thrombectomy strategy during PPCI provides immediate improvement of myocardial perfusion and better short-term LV systolic function, whereas lacks long-term benefits on reducing clinical events.

Keywords: distal protection; thrombectomy, glycoprotein IIb/IIIa inhibitor; myocardial perfusion; left ventricular function; primary percutaneous coronary intervention; ST-segment elevation myocardial infarction