

對於ST節段上升心肌梗塞且經初級冠狀動脈介入治療的病患，冠狀動脈氣球擴張次數對後續顯影劑引起的急性腎損傷的影響 **Remote ischemic post-condition using intermittent intra-coronary balloon inflations and deflations increases contrast-induced acute kidney injury in patients with ST-segment elevation myocardial infarction undergoing primary percutaneous coronary intervention**

劉崢偉，陳永崢，廖本智，陳永崢，陳鼎昌，柯欣榮

亞東紀念醫院心臟血管中心心臟內科

Background : A novel technique, known as remote ischemic post-condition (RIPC), using intermittent myocardial ischemia-reperfusion cycles with serial intra-coronary balloon inflations and deflations, was described to prevent contrast-induced acute kidney injury (CIAKI) in patients with non-ST-segments elevation myocardial infarction. There was also a clear trend toward better clinical outcomes in the 30-day follow-up. However, it is unclear if the protective effects of RIPC exist in patients with ST-segment elevation myocardial infarction (STEMI). Thus, we examined the relationship between RIPC, the rate of CIAKI, and 30-day and 1-year mortality in patients with STEMI undergoing primary percutaneous coronary intervention (pPCI).

Materials and methods : We analyzed 1,111 patients with acute coronary syndrome in a single medical center between 26, Feb, 2007 and 31, Dec, 2012. Patients with STEMI undergoing pPCI and Mehran risk score (MRS) ≥ 5 were eligible. Exclusion criteria included: (1)lack of accurate door time such as (a) transferred from another hospital and out-patient department (b) STEMI occurred in the hospital (c) cardiopulmonary resuscitation developed before pPCI, (2)hemodialysis. Finally, 206 patients (median age of 65 years, 72.8% male) were enrolled in this study. CIAKI is defined as an elevation of ≥ 0.5 mg/dl or $\geq 25\%$ in serum creatinine within 96 h from pPCI.

Result : In the RIPC >9 group (n=63) versus in the RIPC ≤ 9 group (n=143), baseline and angiographic characteristics, and MRS (9, interquartile range: 6-12 versus 8, IQR: 6-11, P=0.119) were similar except that there was more frequent single-vessel disease in the RIPC ≤ 9 group (32.9% versus 14.3%, p=0.006). The RIPC >9 group received more contrast volume (200ml, interquartile range: 180-160) than the RIPC ≤ 9 group (160ml, interquartile range: 150-200) (P<0.001). The pre- and post-pPCI medication, door-to-balloon time, and types of stent implantation were similar. The rate of CIAKI was significantly higher in the RIPC >9 group compared with the RIPC ≤ 9 group (15.7% versus 6.1%, P=0.044). However, clinical outcomes of 30-day and 1-year mortality were not different statistically. In multivariate analysis, RIPC >9 (odds ratio [OR] 7.688, 95% confidence interval [CI] 2.027-29.160, P=0.003), age (OR 1.067,

95% CI 1.01-1.127, $P=0.021$), baseline creatinine (OR 2.968, 95% CI 1.375-6.407, $P=0.006$), and use of intraaortic balloon pump (OR 8.262, 1.994-34.243, $P=0.006$) were independent correlates of CIAKI.

Conclusion : RIPC increased the rate of CIAKI in patients with STEMI and MRS \geq 5 undergoing pPCI. However, the effect was not translated into clinical outcomes.