

中文題目：在施行冠狀動脈介入或週邊血管成型術的病人,探討血管內皮前驅細胞和術後產生顯影劑引發之急性腎傷害及長期癒後的關係

英文題目:Relation of Circulating Endothelial Progenitor Cell Levels to Contrast-Induced Nephropathy in Patients Undergoing Percutaneous Coronary Intervention and Percutaneous Transluminal Angioplasty

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ABSTRACT

Background

Endothelial dysfunction has been proposed as one of the mechanisms contributing to the development of contrast-induced nephropathy (CIN). However, no study has reported the relation between circulating endothelial progenitor cell (EPC) levels and CIN. The aim of this study was to evaluate the relation between circulating EPC and CIN in patients after angiography.

Methods

A total of 77 consecutive patients undergoing elective percutaneous coronary intervention (PCI) and percutaneous transluminal angioplasty (PTA) were enrolled (47 patients receiving PCI, 30 patients receiving PTA). Flow cytometry with quantification of EPC markers (defined as CD34⁺, CD34⁺KDR⁺, and CD34⁺KDR⁺CD133⁺) in peripheral blood samples was used to assess EPC number before the procedure. CIN was defined as an absolute ≥ 0.5 mg/dl or a relative $\geq 25\%$ increase in the serum creatinine level within 48 hours after the procedure.

Results

Among the study subjects, there were 18 patients (23%) developing CIN after the procedures. Circulating EPC levels were significantly lower in patients developing CIN than in those without CIN (CD34⁺KDR⁺, 4.11 ± 2.59 vs. 9.25 ± 6.30 cells/ 10^5 events, $P < 0.001$). The incidence of CIN was significantly greater in patients in the first EPC tertile (CD34⁺KDR⁺; from lowest to highest, 52.0%, 15.4%, and 3.8%, $P < 0.001$). Using univariate logistic regression, circulating EPC number (CD34⁺KDR⁺) was a significant negative predictor for development of CIN (odds ratio 0.69, 95% CI 0.54 - 0.87, $P = 0.002$). Furthermore, over a follow-up of 2 years, patients with CIN have higher incidence of major adverse cardiovascular events including fetal/nonfetal myocardial infarction, stroke, revascularization of

treated vessels, and death (66.7% vs 25.4%, $P=0.004$) than that in patients without CIN.

Conclusions

These findings suggest that decreased EPCs level is associated with a greater risk of CIN after interventional procedures, which may partially explain the pathophysiology of CIN and the poor prognosis in CIN patients.