

中文題目：顯影劑造成的腎病變與病人原本腎臟功能之關係

英文題目：The association between contrast-induced nephropathy and baseline renal function

作者：廖柏崑¹，吳明儒^{1,2}，陳呈旭^{2,3}，蔡尚峰^{2,3,4}

服務單位：¹臺中榮民總醫院內科部，²臺中榮民總醫院內科部腎臟科，³東海大學生命科學系，⁴陽明大學醫學系

Background: Contrast-induced nephropathy had been known for years but it is still a major issue in clinical practice, especially in patients with poor baseline renal function. The large data in Taiwan are still lacking to inform clinicians the definite risk of acute kidney (AKI) and dialysis based on different severity of renal dysfunction.

Methods: We designed a cohort study from of patients who received intravenous non-ionic iso-osmolar contrast-computed tomography (CCT) to study the incidence data of AKI, and emergent hemodialysis within 30 days after CCT. We used stepwise multivariate logistic regression analysis to estimate any associated factors Baseline renal function was within 2 days before CCT. The criteria of AKI were according to Kidney Disease Improving Global Outcomes (KDIGO).

Results: Clinical data of all participants were retrieved from the Clinical Informatics Research & Development Center of Taichung Veterans General Hospital (application number F15059), and all patents received intravenous non-ionic iso-osmolar CCT at this hospital between June 1, 2008, and March 31, 2015, and were followed up until September 30, 2015. Initially, all 58106 are included. After exclusion, 12271 patients were recruited in this study. The incidences of post-CCT **AKI** were as follow: 8.3% in stage 1, 6.7% in stage 2, 9.9% in stage 3A, 14.3% in stage 3B, 20.5% in stage 4 and 20.4% in stage 5 of CKD. The incidence of AKI increased significantly after stage 3A-CKD as the renal function progressed ($p < 0.001$). In multivariate Cox regression model, stage IV is with higher risk for AKI (OR=1.90, 95%CI=1.29-2.79, $p = 0.001$). As for the incidence of **dialysis**, it also increased since stage 3A of CKD similarly (1.0%, 1.4%, 2.7%, 5.7%, 18%, and 54.1%, $p < 0.001$). In multivariate Cox regression model, stage 3A, 3B, IV and V are with higher risk for AKI (OR=2.19, 3.98, 11.06, and 36.38; $p = 0.010$, < 0.001 , < 0.001 , and < 0.001). Dialysis within 30 days after CCT can be predicted by baseline serum creatinine (within 2 days before CCT) with strong predictive value: sensitivity=72.78%, specificity=86.07%, and AUC= 0.851, if serum creatinine > 1.5 mg/dl; sensitivity=70.19%, specificity=89.08%, and AUC= 0.853, if eGFR ≤ 38.49 ml/min/1.732m².

Conclusion: In our clinical practice, the largest cohort study point out the importance of baseline renal function. Post-CCT AKI will occur since stage 3A-CKD. The risk will increase 90% in stage 4-CKD. Patients may need dialysis since baseline stage 3A-CKD with 190% increased risk. This study is with largest cohort with strongest evidence currently.

Keywords: contrast-computed tomography, acute kidney injury, dialysis, mortality, chronic kidney disease