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## **Application of Contrast-Induced Nephropathy Criteria on Fluorescent Angiography: Is Sodium Fluorescein a Possible Cause of Contrast-Induced Nephropathy?**

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**Objectives:** Contrast-induced nephropathy (CIN) is a common cause of acute kidney injury (AKI), and it can be diagnosed when its etiology of AKI is not clear other than a contrast agent. Fluorescent angiography (FAG) with fluorescein sodium dye is generally considered to be safe for patients with kidney diseases. However, it remains unresolved whether FAG can induce CIN.

**Methods:** A total of 1025 cases (987 patients) who underwent FAG and had serum creatinine (sCr) results within one month before FAG and within 3 days after FAG were reviewed from the two tertiary hospitals between 2001 and 2017. Patients with concurrent iodinated contrast imaging or undergoing dialysis before examinations were excluded. CIN was defined as an increase in a sCr level  $\geq 0.5$ mg/dL or  $\geq 25\%$  within 3 days.

**Results:** Among patients undergoing FAG, 83 cases (8.1%) met CIN criteria and 66 cases of them (79.5%) had no other clear cause of AKI than FAG. When cases were categorized by chronic kidney disease stages, prevalence of CIN showed U-shaped distribution; higher prevalence in stage 1 (11.5%) and stage 5 (29.3%) than the others. During the median follow-up period of 5.1 years (maximum 17.4 years), CIN group had a higher hazard ratio of end-stage renal disease than non-CIN group (38.6% vs. 19.0%, log rank  $P = <0.001$ ).

**Conclusions:** According to conventional CIN criteria, FAG may cause CIN and it appeared to be a possible risk factor for end-stage renal disease progression. However, CIN criteria itself may overestimate AKI, it requires attention to interpretation of the results.

Figure 1. Kaplan-Meier curve according to CIN

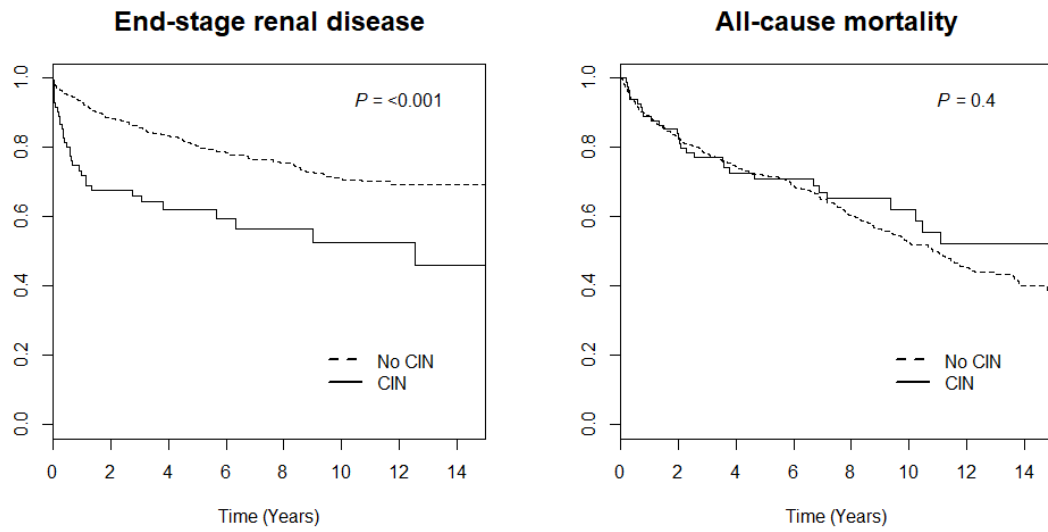


Figure 2. Prevalence of CIN according to CKD stages

