

慢性腎臟病本身超越傳統心血管危險因子為中風的因果危險因子：台灣全國性的世代研究

## **Chronic Kidney Disease per se is a causal risk factor for stroke beyond traditional cardiovascular risk factors: A nationwide cohort study in Taiwan**

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**Background:** Cardiovascular disease (CVD) is a leading cause of mortality and morbidity in patients with chronic kidney disease (CKD), and CVD in Taiwan is dominated by strokes. However, there is no robust evidence for the causal relationship between CKD itself and stroke. This population-based cohort study was conducted to explore the causal association by use of Taiwan National Health Insurance Research Database.

**Methods:** The study cohort consisted of patients hospitalized with a principal diagnosis of CKD and no traditional cardiovascular risk factors at baseline (n=1885) and an age-matched control cohort of patients hospitalized for appendectomies from 2004 to 2006 (n=1885, a surrogate for the general population). Cox proportional hazard regression and propensity score model were used to compare the four-year stroke-free survival rate of the two cohorts after adjustment for possible confounding factors.

**Results:** There were 387 stroke patients, 223 (11.8%) in the study cohort and 164 (8.7%) in the control cohort. After adjustment for covariates, patients with primary CKD had a 1.53-fold greater risk for stroke (95% CI, 1.21-1.93;  $p < 0.001$ ) based on Cox regression and a 1.41-fold greater risk for stroke (95% CI, 1.11-1.81;  $p = 0.005$ ) based on propensity score.

**Conclusion:** Our study of Taiwanese patients indicates that CKD itself is a causal risk factor for stroke beyond traditional cardiovascular risk factors and that primary CKD patients have higher risk for stroke than the general population. All CKD patients, irrespective of the presence or severity of traditional cardiovascular risk factors, should be prompted for the awareness about the stroke risk and monitored to prevent stroke.