THE KOREAN SOCIETY OF NEPHROLOGY
APCN & KSN 2024
June 13(Thu) - 16(Sun), 2024 Coex, Seoul, Korea
Promoting Sustainable Kidney Health: The Asia-Pacific and Beyond

Abstract Submission No.: A-1368

The association of longitudinal trajectories of metabolic clusters and the risk of major adverse kidney events

Mei-Yi Wu[1], Chung-Shun Wong[4], Wei-Cheng Lo[2], Mai-Szu Wu[3]
[1]Department of Internal Medicine-Nephrology, Shuang Ho Hospital, Taiwan
[2]Department of Emergency Medicine, Shuang Ho Hospital, Taiwan
[3]Department of College of Public Health, Taipei Medical University, Taiwan
[4]Department of Graduate Institute of Clinical Medicine, Taipei Medical University, Taiwan

Objectives : Chronic Kidney Disease (CKD) is highly prevalent in Taiwan, contributing to the world's highest prevalence of end-stage kidney disease (ESKD) patients undergoing renal replacement therapy. Limited research has explored the impact of longitudinal metabolic risk cluster trajectories on CKD progression to ESKD and major adverse kidney events (MAKE).
Methods : We conducted a registry-based prospective study using data from a multidisciplinary pre-ESRD care program. We used group-based multi-trajectory modeling to categorize longitudinal trajectories of metabolic risk cluster (systolic blood pressure, fasting glucose, and low-density lipoprotein cholesterol). Time to dialysis or MAKE was analyzed using multiple Cox proportional hazards regression.
Results : In a cohort of 1,494 CKD patients, four distinct metabolic risk trajectory groups were identified. Group I maintained blood pressure and glucose levels within recommended targets but had elevated LDL. Group II displayed borderline-high blood pressure and elevated glucose levels. Group III maintained controlled glucose and low LDL levels but exhibited borderline-high blood pressure. In Group IV, glucose levels were controlled, but both blood pressure and LDL levels were elevated. Trajectory Group I exhibited significantly better dialysis-free and MAKE-free survival (log-rank test, $p < 0.001$). Adjusted for covariates, Groups II (HR: 1.15, 95% CI: 0.58, 2.30), III (HR: 1.53, 95% CI: 0.90, 2.62), and IV (HR: 2.30, 95% CI: 1.21, 4.38) had an increased dialysis risks compared to Group I. Similar patterns were observed for MAKE outcomes, reinforcing the association between trajectory groups and adverse kidney events.
Conclusions : This study underscores the relevance of longitudinal metabolic risk cluster trajectories in accelerating CKD progression to ESKD and death. Our findings inform clinical practice to consider the long-term monitoring of metabolic risk cluster trajectories in patients with CKD.