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## **Impact of Health Insurance Type on Emergency Department Visits and Clinical Outcomes in End-Stage Kidney Disease Patients in Korea: A Nationwide Registry Analysis**

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**Objectives :** Health insurance type plays a critical role in healthcare accessibility and outcomes, particularly for patients with end-stage kidney disease (ESKD). This study examines the impact of National Health Insurance (NHI) and Medical Aid (MA) on emergency department (ED) utilization, hospitalization, and in-hospital mortality among ESKD patients in Korea.

**Methods :** This retrospective cohort study utilized data from the National Emergency Department Information System (NEDIS), a nationwide database covering over 95% of emergency medical centers in Korea, from 2018 to 2021. ESKD patients visiting the ED were identified based on ICD-10 codes (N18.5). Patients were categorized by health insurance type (NHI vs. MA). Primary outcomes included ED visit frequency, primary diagnoses, hospitalization rates, and in-hospital mortality. Multivariate logistic regression models adjusted for demographic and clinical factors were used to assess the association between insurance type and outcomes.

**Results :** Among 157,794 ED visits, 23.5% were by MA recipients and 76.5% by NHI beneficiaries. The most common ED visit reasons were cardiovascular disease, infection, and electrolyte imbalance. MA recipients had a higher hospitalization rate (adjusted OR 1.142,  $p < 0.001$ ) compared to NHI beneficiaries, but after adjusting for confounders, in-hospital mortality did not differ significantly between groups (adjusted OR 1.073,  $p = 0.025$ ).

**Conclusions :** Despite Korea's universal health coverage, ESKD patients receiving Medical Aid demonstrated a higher risk of hospitalization following ED visits. However, the adjusted in-hospital mortality rates between the two insurance groups were not significantly different. These findings highlight the need for targeted interventions to improve emergency care accessibility for socioeconomically disadvantaged ESKD patients.