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Emergency Department Utilization Among ESKD Patients: NEDIS Database

Ajin Cho

Konkuk University Medical Center, Republic of Korea

The incidence of end-stage kidney disease (ESKD) is increasing worldwide. South Korea is a country with a high incidence and prevalence of ESKD. Patients with ESKD are more likely to visit the emergency department (ED) more frequently due to ESKD-related complications and underlying comorbidities. In South Korea, the Emergency Medical Act established the National Emergency Medical Information System (NEDIS), which collects real-time information on medical treatment transmitted from emergency medical centers nationwide, to build an advanced emergency medical system and lay the foundation for emergency medical research and policy. We examined ED utilization among ESKD patients in South Korea based on the NEDIS database. The analysis included 125,392 ED visits by ESKD patients. ESKD patients were older, more likely to be female, more likely to receive medical assistance, and had higher severity at triage. Emergency department visits by ESKD patients had significantly higher rates of hospitalization (66.7%) and in-hospital mortality (9.4%) compared to the general population (21.0% and 5.1%, respectively). We analyzed the pattern of ED visits for patients with ESKD. A post-weekend effect was found in the distribution of ED visits for patients with ESKD. In South Korea, every citizen is enrolled in National Health Insurance (NHI) system. Therefore, about 97% of the citizens are under the NHI beneficiary. We compared ED utilization between Medical aid (MA) recipients and NHI beneficiaries among ESKD patients. The proportion of MA recipients among ESKD patients (25%) was higher than the general population (3%). There was a significant difference in the age distribution between the two groups. MA recipients were predominantly in their 30s to 60s, whereas NHI beneficiaries were mostly older patients. And MA recipients were more likely to be discharged home after ED visit while NHI beneficiaries were more likely to be

admitted to general ward or intensive care unit from ED. MA recipients had lower hospitalization and mortality rates compared to NHI beneficiaries. However, the MA recipients aged younger than 60 demonstrated significantly higher in-hospital mortality rates than NHI beneficiaries. These findings can be explained by the fact that they are economically active, but because they are included in the low-income group, they do not want to be admitted to the hospital and seek temporary care in the emergency department. This can lead to poor prognosis for serious illnesses. We should take attention to the MA recipients who are admitted through ED since their clinical severity and in-hospital mortality can be higher than expected. We conducted a comprehensive analysis of hospitalizations, mortality and ED visits among HD patients in the South Korea in 2018-2021 and found that incidence rates of these outcomes varied systematically by day of the week, and type of outcome. While we were unable to infer causality, these findings may stimulate new hypotheses and research on the utilization of hospital services by this patient population and may be helpful to policymakers, administrators, and clinicians who need to plan care for these patients.

Keywords: ESKD, Emergency department, Hospitalization, Mortality, Trend