HEALTHCARE RESOURCE UTILISATION AND COSTS ASSOCIATED WITH HYPERKALEMIA IN CKD PATIENTS

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INTRODUCTION AND AIMS: Hyperkalemia (HK), commonly defined as potassium level >5.0 mmol/L, is associated with a high risk of cardiovascular events and short-term mortality among acutely hospitalized patients and among patients with chronic kidney disease (CKD). Although HK has also been associated with prolonged stay during acute hospitalizations and with intensive care unit (ICU) and emergency department visits, overall healthcare resource utilization (HRU) and costs associated with HK among CKD patients have not been comprehensively studied. The aim of this study was to estimate the healthcare costs associated with HK in a real-world clinical setting among patients with CKD.

METHODS: Patients with an incident diagnosis of CKD were identified from medical registries covering the entire population (1.8 million) of Northern Denmark between 1 January 2005 and 30 June 2011. CKD was defined as the first occurrence of: (i) second measurement (>90 days following prior measurement) of estimated glomerular filtration rate (eGFR) <60 mL/min/1.73 m²; (ii) incident hospitalization with diagnosis of CKD or (iii) hospital-based procedure code for dialysis. First and subsequent HK events in primary or hospital care, i.e. blood potassium level >5.0 mmol/L, were recorded. For each CKD patient experiencing a first HK event, a CKD patient without HK was matched for comparison on the HK index date on prespecified clinical characteristics. The mean costs based on the recorded utilization of hospital-based inpatient and outpatient care, general practitioner (GP) GP services, and medications dispensed at pharmacies were measured in 2015 Euros (€) in a period of 6 months before and 6 months after the HK index date. The difference in mean costs within the defined time period was calculated in HK patients and matched non-HK comparisons, weighted by time-at-risk 6 months after HK, to account for early mortality.

RESULTS: Overall 17,747 CKD patients with a first HK event were identified. Of these, 44% had a second HK event, while the proportions of patients who experienced a third (36%) or fourth (61%) event were even greater, with successively shorter time intervals between HK events. Among this CKD cohort, accounting for mortality, overall mean costs were €9,045 higher 6 months after the first HK event compared to 6 months before the HK, while mean costs increased by only 6654 in matched non-HK CKD comparisons during the same period, resulting in HK-associated costs of €8,391. Acute hospitalizations constituted 74% of the overall HK-associated costs, planned hospital admissions 21%, hospital outpatient care visits 4%, GP services 1%, and out-of-hospital medication costs remained unchanged. Costs increased with increasing severity of the HK episode. Substantial HK-associated costs were observed in CKD patients both with and without use of renin-angiotensin-aldosterone system inhibitors.

CONCLUSIONS: The costs associated with HK were substantial among CKD patients, and were mainly driven by increased use of hospital-based care. The increased HRU and corresponding costs associated with HK events, as well as the recurring pattern of events among CKD patients, may incur a substantial economic burden for healthcare providers and payers.