

Short Communication

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Impact of Chronic Kidney Disease on Outcomes in Patients Admitted to the Hospital for Paroxysmal Atrial Fibrillation: A National Inpatient Sample Database Analysis

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Background: Atrial fibrillation (AF) and chronic kidney disease (CKD) are interrelated in various ways. They share many of the same risk factors and they are known risk factors for each other. AF prevalence ranges between 15% and 20% in advanced stages of CKD, while CKD is associated with increased cardiovascular risk and all-cause mortality, affecting 40–50% of patients with AF [1-4]. We aim to study the impact of CKD and Hemodialysis on the mortality, length of stay and total cost of hospitalization in patients admitted with the primary diagnosis of paroxysmal atrial fibrillation.

Methods: It was a retrospective cohort study using the 2018 National Inpatient Sample to include adult patients with CKD, admitted to the hospital with the primary diagnosis of paroxysmal atrial fibrillation (ICD-10 code: I48.0). Outcomes were mortality, length of stay and total cost of hospitalization. Patients on hemodialysis were studied as a separate group.

Results: We found a total of 29,005 eligible cases with CKD who were admitted with the primary diagnosis of paroxysmal AF and 3735 (12.9%) were receiving hemodialysis. The mean age was 74.64 years and 53.3% were females. 76.25% were White, 12.78% were African-American, 6.48% were Hispanic, 2.17% were Asian or pacific islander and 0.51% were Native American. 100% had a Charlson comorbidity index score of 2 or higher, while 81.36% had a median household income of less than \$74,000 a year.

CKD on hemodialysis was associated with increased odds of mortality [adjusted odds ratio (OR): 1.98; 95% confidence interval (CI): 1.07-3.68], when adjusted for age, race, Charlson index, hypertension (HTN) and congestive heart failure (CHF). Age and Charlson comorbidity score [adjusted odds ratio (OR): 1.46; 95% confidence interval (CI): 1.38-1.55] were independently associated with increased odds of mortality, while HTN was found to be associated with decreased odds of mortality [adjusted odds ratio (OR): 0.42; 95% confidence interval (CI): 0.27-0.66] on the multivariate regression analysis.

Being Native American was an independent factor associated with increased odds of mortality [adjusted odds ratio (OR): 6.88; 95% confidence interval (CI): 2.4-19.7], despite the fact that Native-

Americans represented only 0.51% of patients with AF and CKD, and 0.82% on hemodialysis.

Age, Charlson Index, non-rural hospital location, both teaching and non-teaching status and CHF were independent variables associated with increase length of stay ($p < 0.01$). Being African American was an independent factor associated with increased length of stay ($p < 0.01$), despite the fact that African-Americans represented only 12.78% of patients with AF and CKD, and 26.98% of patients on hemodialysis.

Mean household income, CKD, HTN and DM2 were associated with decreased length of stay in the multivariate linear regression analysis. Gender, CKD on HD and CAD had no statistical significance in the multivariate linear regression analysis.

Race (Hispanics and Asians), Charlson index, CAD, both Urban non-teaching and Urban teaching hospital, were independent variables associated with increase total costs of hospitalization ($p < 0.01$). Been Native American was associated with decreased costs of hospitalization, this is a noteworthy finding even though it did not reach statistical significance in the multivariate linear regression analysis.

Conclusion: CKD, hemodialysis, age, race and Charlson comorbidity score were independent factors associated with increased mortality. Native Americans had increased odds of mortality but lower hospitalization costs, while being African-American was associated with increased length of stay.

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