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Association of Age, Gender and Race in Chronic Kidney Disease Patients with and without Dialysis

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ASSOCIATION OF AGE, GENDER AND RACE IN CHRONIC KIDNEY DISEASE PATIENTS WITH AND WITHOUT DIALYSIS

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Background

- Studies have shown that chronic kidney disease (CKD) is common among adults in the United States.
- The Center for Disease Control and Prevention (CDC) states that 30 million people or 15% of US adults are estimated to have CKD.
- 48% of those with severely reduced kidney function not aware of having CKD and therefore do not receive hemodialysis.

Purpose

- The purpose of this study was to investigate the association of age, gender and race in chronic kidney diseased patients with and without dialysis.

Methods

- A nationwide inpatient sample database from 2012-2014 was used to identify all patients admitted to the hospital using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes (n= 534,845).
- Patients with dialysis dependent CKD (n=8,100) and CKD without dialysis (n=51,285) were compared to non-CKD patients (n=475,460).
- Hierarchical logistic regression was performed and $p < 0.05$ was considered as the level of significance.

Variables

- Explanatory Variables
 - Age
 - Gender
 - Race

Results

- The sample included 534,845 patients admitted to the hospital.
- 11.1% of the sample had CKD
 - 9.59% had CKD without dialysis and 1.51% had CKD with dialysis
 - Among patients with CKD, 13.64% were on HD
 - 86.34% with CKD were non HD patients
- Age
 - Mean age for total population; male - 61.36, female - 68.41
 - Mean age for patients with CKD,
 - Non-HD - males - 71.12, females - 76.96
 - With HD - males - 66.21, females - 67.62
 - Higher proportion of patients with CKD without HD in the ≥ 80 years age group ($\geq 80 = 37.84\%$, $65-79 = 36.94\%$, $50-64 = 20.80\%$, $35-49 = 4.12\%$ and $18-34 = 0.30\%$).
 - Among patients with CKD patients with HD, 65-79 years of age were the highest in the age group. ($\geq 80 = 16.30\%$, $65-79 = 41.79\%$, $50-64 = 33.09\%$, $35-64 = 8.09\%$ and $18-34 = 1.29\%$).
 - 9.59% had CKD without dialysis and 1.51% had CKD with dialysis.

Results(contd.)

- Gender
 - Males had higher rates of CKD with and without HD
 - 54.51% of males had CKD with non-HD, 8.03% were on HD
 - 31.85% of females had CKD with non-HD, 5.62% were on HD
- Race
 - 65.09% whites with mean age of 74.57 had CKD without HD, 7.17% with mean age of 69.20 had CKD with HD
 - 9.53% Blacks with mean age of 67.38 had CKD without HD, 3.24% with mean age of 63.62 had CKD with HD
 - 2.52% Asians with mean age of 73.26 had CKD without HD, 0.72% with mean age of 67.20 had CKD with HD
 - 0.40% Native Americans/ AK natives with mean age 70.47 had CKD without HD, 0.13% with age of 65.14 had CKD with HD
 - 8.65% from other races had CKD without HD, 2.56% had CKD with HD

Logistic regression of variables

Variable	Odds ratio	95% confidence interval	P-value
Age			
18 - 34 vs ≥ 80	4.023	2.941 - 5.504	0.0010
35 - 49 ≥ 80	3.802	3.404 - 4.246	<.0001
50 - 64 vs ≥ 80	3.366	3.123 - 3.628	<.0001
65 - 79 vs ≥ 80	2.546	2.375 - 2.730	0.2733
Gender			
Female vs male	1.448	1.375 - 1.525	<.0001
Race			
Asian vs white	2.486	2.210 - 2.797	<.0001
Black vs white	2.479	2.324 - 2.644	<.0001
Hispanic vs white	2.727	2.531 - 2.938	<.0001
Native American vs white	2.288	1.740 - 3.008	0.1234
Other vs white	1.265	1.090 1.469	<.0001

Conclusion

- From this study, males had higher rates of CKD with and without HD than females
- The age group ≥ 80 years had higher proportion of CKD without HD and those between 65-79 years had higher number of CKD with HD.
- Among the race, whites had higher rates of CKD with and without HD than other races.