Apr 12th, 11:00 AM - 11:15 AM

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

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Onatolu, Busayo; Zheng, Shimin; Panchal, Hemang; and Leinaar, Edward, "Association of Age, Gender and Race in Chronic Kidney Disease Patients with and without Dialysis" (2019). *Appalachian Student Research Forum*. 23.

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

East Tennessee State University
*Sponsoring faculty
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.
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 (≥ 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. ((≥ 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

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