Association between multiple cardiovascular comorbidities and the prevalence of Heart attack among peripheral arterial disease patients in rural Central Appalachia.

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Background

- In the United States (U.S.), heart disease accounts for about 610,000 deaths annually. Myocardial infarction (MI) contributes more than half of this burden. Every 40 seconds, someone in the U.S. experiences heart attack.
- Approximately 8.5 million people in the U.S. have peripheral arterial disease (PAD).
- Rural central Appalachia has a significantly increased burden, 27% higher than that of the metro counties.
- Studies have shown that MI often occurs with a background of several cardiovascular comorbidities and risk factors, most of which are preventable. Examples include hypertension, diabetes, dyslipidemia, PAD, obesity, smoking, etc.
- Notably research is limited in the role these other CVD risk play in the propagation MI in PAD patients.

Purpose

- To explore the association between diabetes mellitus, hypertension and dyslipidemia and the prevalence of myocardial infarction among patients with PAD.

Methods

- Study Population: 13455 subjects with PAD were recruited using ICD-9 and 10 search terms for PAD from the EMR system between Jan 1, 2008 and April 30, 2018.
- Outcome: History of MI, categorized into presence or absence of the disease.
- Predictors: They include various risk factors for MI: age, body mass index, lipid status, gender, hypertension and diabetes.
- Statistical analysis: Descriptive analysis of CVD risk factors was done.
- Multivariable logistic regression was used to estimate the association between CVD comorbidities and Myocardial infarction

Results

Table 1: Association between CVD risk factors with history of myocardial infarction: stratified by Male gender N=13455

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Odd ratio</th>
<th>P-value</th>
<th>95% C.I. for OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.000</td>
<td>0.988</td>
<td>0.987 1.013</td>
</tr>
<tr>
<td>BMI</td>
<td>1.008</td>
<td>0.508</td>
<td>0.985 1.031</td>
</tr>
<tr>
<td>LDL</td>
<td>0.996</td>
<td>0.631</td>
<td>0.980 1.013</td>
</tr>
<tr>
<td>HDL</td>
<td>0.967</td>
<td>0.001</td>
<td>0.949 0.986</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>1.000</td>
<td>0.951</td>
<td>0.984 1.015</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>1.000</td>
<td>0.760</td>
<td>0.997 1.002</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.138</td>
<td>0.345</td>
<td>0.870 1.489</td>
</tr>
<tr>
<td>Hypertensi</td>
<td>3.690</td>
<td>0.003</td>
<td>1.559 8.736</td>
</tr>
</tbody>
</table>

Discussion & Conclusions

- Prevalence of MI, diabetes, hypertension and hypercholesterolemia is higher in males than females.
- MI have higher likelihood of occurrence among hypertensives compared to non-hypertensives across both gender. Same applies to diabetes both only significant in the female gender.
- Findings underscores the importance of proactive screening aimed at prevention and control of Diabetes and Hypertension among PAD patients which are known to worsen the outcome if not addressed.
- Efforts should be geared at understanding the male dominance in risk factors in the region and mitigating measures should be explored.

Acknowledgement

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